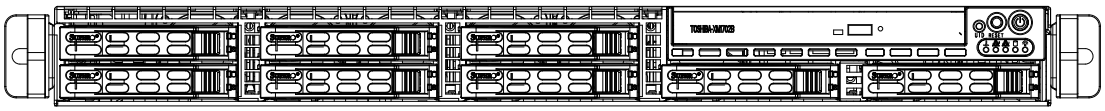
SUPERMICRO®

# SUPERSERVER 1026T-URF
# SUPERSERVER 1026T-UF



## USER'S MANUAL

1.0b

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL SUPERMICRO BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPERMICRO SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Super Micro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

## WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision 1.0b
Release Date: December 18, 2012

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2012 by Super Micro Computer, Inc.
All rights reserved.
**Printed in the United States of America**

# Preface

## About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 1026T-URF/1026T-UF. Installation and maintenance should be performed by experienced technicians only.

## Manual Organization

### Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the X8DTU-F serverboard and the SC113TQ-R650UB/SC113TQ-560UB chassis, which comprise the SuperServer 1026T-URF/1026T-UF.

### Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

### Chapter 3: System Interface

Refer here for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

### Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 1026T-URF/1026T-UF.

### Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the X8DTU-F serverboard, including the locations and functions of connections, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the serverboard.

### Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC113TQ-R650UB/SC113TQ-560UB server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SATA or peripheral drives and when replacing system power supply modules and cooling fans.

### Chapter 7: BIOS

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility.

### Appendix A: BIOS Error Beep Codes

### Appendix B: Installing Windows

### Appendix C: System Specifications

## Notes

# Table of Contents


## *Chapter 1 Introduction*

1-1 Overview ..... 1-1
1-2 Serverboard Features ..... 1-2
Processors ..... 1-2
Memory ..... 1-2
UIO ..... 1-2
Serial ATA ..... 1-2
Onboard Controllers/Ports ..... 1-2
Graphics Controller ..... 1-3
Other Features ..... 1-3
1-3 Server Chassis Features ..... 1-3
System Power ..... 1-3
PCI Expansion Slots ..... 1-3
Control Panel ..... 1-3
I/O Backplane ..... 1-4
Cooling System ..... 1-4
1-4 Contacting Supermicro ..... 1-6

## *Chapter 2 Server Installation*

2-1 Overview ..... 2-1
2-2 Unpacking the System ..... 2-1
2-3 Preparing for Setup ..... 2-1
Choosing a Setup Location ..... 2-1
2-4 Warnings and Precautions ..... 2-2
Rack Precautions ..... 2-2
Server Precautions ..... 2-2
Rack Mounting Considerations ..... 2-3
Ambient Operating Temperature ..... 2-3
Reduced Airflow ..... 2-3
Mechanical Loading ..... 2-3
Circuit Overloading ..... 2-3
Reliable Ground ..... 2-3
2-5 Installing the System into a Rack ..... 2-4
Identifying the Sections of the Rack Rails ..... 2-4
Inner Rails ..... 2-5
Outer Rails ..... 2-6
Installing the Server into a Telco Rack ..... 2-9

2-6 Checking the Serverboard Setup....2-11
2-7 Checking the Drive Bay Setup.... 2-12

***Chapter 3 System Interface***

3-1 Overview .... 3-1
3-2 Control Panel Buttons .... 3-1
Reset .... 3-1
Power .... 3-1
UID .... 3-1
3-3 Control Panel LEDs .... 3-2
Universal Information LED .... 3-2
NIC2 .... 3-3
NIC1 .... 3-3
HDD.... 3-3
Power .... 3-3
3-4 Hard Drive Carrier LEDs .... 3-4

***Chapter 4 Standardized Warning Statements for AC Systems***

4-1 About Standardized Warning Statements .... 4-1
Warning Definition .... 4-1
Installation Instructions.... 4-4
Circuit Breaker .... 4-5
Power Disconnection Warning .... 4-6
Equipment Installation .... 4-8
Restricted Area.... 4-9
Battery Handling.... 4-10
Redundant Power Supplies .... 4-12
Backplane Voltage .... 4-13
Comply with Local and National Electrical Codes .... 4-14
Product Disposal .... 4-15
Hot Swap Fan Warning .... 4-16
Power Cable and AC Adapter .... 4-18

***Chapter 5 Advanced Serverboard Setup***

5-1 Handling the Serverboard .... 5-1
Precautions .... 5-1
Unpacking .... 5-1
5-2 Processor and Heatsink Installation.... 5-2
Installing LGA1366 Processors.... 5-2
Installing the Heatsink.... 5-4
Removing the Heatsink.... 5-5

5-3 Connecting Cables ..... 5-6
Connecting Data Cables ..... 5-6
Connecting Power Cables ..... 5-6
Connecting the Control Panel ..... 5-6
5-4 I/O Ports ..... 5-7
5-5 Installing Memory ..... 5-8
5-6 Adding PCI Cards ..... 5-10
5-7 Serverboard Details ..... 5-11
X8DTU-F Quick Reference ..... 5-12
5-8 Connector Definitions ..... 5-13
5-9 Jumper Settings ..... 5-19
5-10 Onboard Indicators ..... 5-22
5-11 SATA Port Connections ..... 5-23
5-12 Installing Software ..... 5-24
Supero Doctor III ..... 5-25

***Chapter 6 Advanced Chassis Setup***

6-1 Static-Sensitive Devices ..... 6-1
Precautions ..... 6-1
6-2 Control Panel ..... 6-2
6-3 System Cooling ..... 6-2
System Fan Failure ..... 6-3
6-4 Drive Bay Installation/Removal ..... 6-4
Accessing the Drive Bays ..... 6-4
Hard Drive Installation ..... 6-4
DVD Drive Installation ..... 6-6
6-5 Power Supply ..... 6-8
1026T-URF ..... 6-8
1026T-UF ..... 6-9

***Chapter 7 BIOS***

7-1 Introduction ..... 7-1
7-2 Main Setup ..... 7-2
7-3 Advanced Setup Configurations ..... 7-4
7-4 Security Settings ..... 7-21
7-5 Boot Configuration ..... 7-23
7-6 Exit Options ..... 7-24

***Appendix A BIOS Error Beep Codes***

***Appendix B Installing Windows***

***Appendix C System Specifications***

# Chapter 1

# Introduction

## 1-1 Overview

The SuperServer 1026T-URF/1026T-UF is a high-end server comprised of two main subsystems: the SC113TQ-R650UB//SC113TQ-560UB 1U chassis and the X8DTU-F serverboard. Please refer to our web site for information on operating systems that have been certified for use with the system (www.supermicro.com).

**Note**: a complete list of safety warnings is provided on the Supermicro web site at http://www.supermicro.com/about/policies/safety_information.cfm

In addition to the serverboard and chassis, various hardware components have been included with the 1026T-URF/1026T-UF, as listed below:

- One slim DVD-ROM drive (DVM-TEAC-DVD-SBT)
- One mini USB to SATA adapter (CDM-USATA-G)
- Four sets of 4-cm counter-rotating fans (FAN-0086L4)
- One air shroud (MCP-310-19002-0N)
- One DVD-ROM drive cable (CBL-0061)
- One internal USB cable for DVD drive (CBL-0341L)
- Two passive CPU heatsinks (SNK-P0037P)
- Riser Cards: (see Section 5-6 for details)
  One RSC-R1UU-UE16 for PCI-E card
- Hard Drive Accessories
  One SAS/SATA backplane (BPN-SAS-113TQ)
  Two SAS/SATA iPASS cables (CBL-0287L, CBL-0288L)
  Eight SAS/SATA drive carriers (MCP-220-00047-B)
- One rackmount kit (MCP-290-00043-0V)
- One CD containing drivers and utilities
- SuperServer 1026T-URF/1026T-UF User's Manual

## 1-2 Serverboard Features

At the heart of the SuperServer 1026T-URF/1026T-UF lies the X8DTU-F, a dual processor serverboard based on the Intel® IOH-36D + ICH10R chipset. Below are the main features of the X8DTU-F. (See Figure 1-1 for a block diagram of the chipset).

### Processors

The X8DTU-F supports single or dual two Intel® 5500 Series processors in LGA1366 sockets. Please refer to our web site for a complete listing of supported processors (www.supermicro.com).

### Memory

The X8DTU-F has 240-pin DIMM sockets that can support up to 96 GB of registered ECC DDR3-1333/1066/800 SDRAM. Please refer to Chapter 5 for installing memory.

### UIO

The X8DTU-F is a specially-designed serverboard that features Supermicro's UIO (Universal I/O) technology. UIO serverboards have a PCI Express x8 slot that can support any one of several types of UIO card types to add SAS ports, additional LAN ports, etc. to the serverboard. This allows the user to tailor the serverboard to their own needs.

**Note:** the server does not come with a UIO card installed.

### Serial ATA

An on-chip (ICH10R) SATA controller is integrated into the X8DTU-F to provide a six-port, 3 Gb/sec SATA subsystem, which is RAID 0, 1, 5 and 10 supported. The SATA drives are hot-swappable units.

**Note:** You must have RAID set up to enable the hot-swap capability of the SATA drives. Documentation on RAID setup guidelines can be found on our web site.

### Onboard Controllers/Ports

The color-coded I/O ports include one COM port, a VGA (monitor) port, two USB 2.0 ports, PS/2 mouse and keyboard ports, one IPMI dedicated LAN port and two gigabit Ethernet ports.

### Graphics Controller

The X8DTU-F features an integrated Matrox G200eW graphics chip, which includes 8 MB of DDR2 memory.

### Other Features

Other onboard features that promote system health include onboard voltage monitors, auto-switching voltage regulators, chassis and CPU overheat sensors, virus protection and BIOS rescue.

## 1-3 Server Chassis Features

The SC113 features eight 2.5" hard drive bays and high-efficiency power supplies. The 1026T-URF is built upon the SC113TQ-R650UB chassis while the 1026T-UF is built upon the SC113TQ-560UB chassis. Details on the chassis and on servicing procedures can be found in Chapter 6.The following is a general outline of the main features of both chassis.

### System Power

The SC113TQ-R650UB features a redundant 650W power supply consisting of two power modules. The system does not need to be shut down when replacing or removing a single power supply module.

The SC113TQ-560UB features a single 560W power supply module. The system must be shut down when replacing or removing this power supply module.

### PCI Expansion Slots

A riser card (RSC-R1UU-E8PR, optional) on the right side of the chassis can support AOC-PG-i2+ add-on card to provide two Gb LAN ports. The left side supports a UIO card and one PCI-E x16 card. These two systems can support four SAS/SATA drives with an optional UIO SAS card. See our web site for details (http://www.supermicro.com/products/nfo/UIO.cfm).

See page 5-10 for details. (Right and left refer to the side when viewed from the front of the system.

### Control Panel

The SC113 control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and a UID (Universal Information) LED. Also present are a main power button, a system reset button and a UID button.

## I/O Backplane

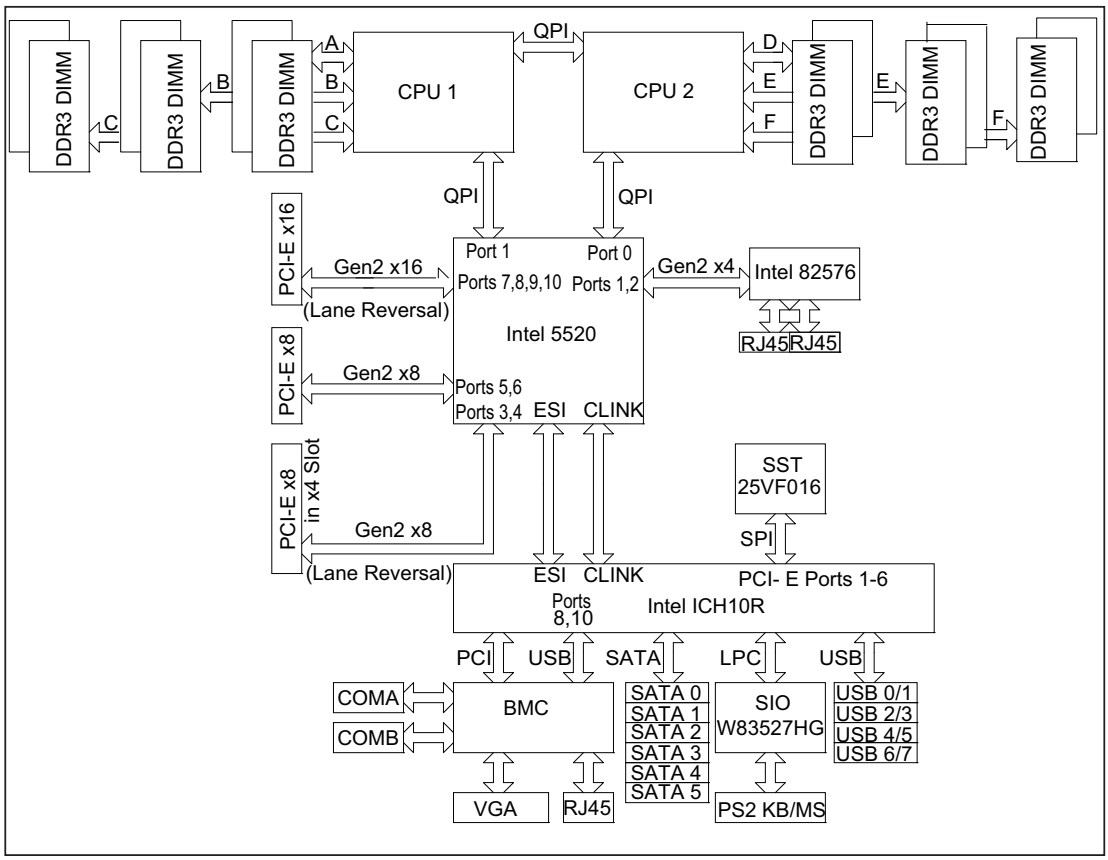
The SC113 is a 1U rackmount chassis. Its I/O backplane provides three standard size PCI slots, one COM port, one VGA port, two USB ports, PS/2 mouse and keyboard ports, two Ethernet (LAN) ports, one dedicated IPMI LAN port and a UID LED.

## Cooling System

The SC113 chassis' revolutionary cooling design has been optimized to provide sufficient cooling for dual CPU configurations. The chassis includes an air shroud and four 4-cm counter-rotating fans located in the middle of the chassis. There is a "Fan Speed Control Mode" in BIOS that allows chassis fan speed to be determined by system temperature.

**Figure 1-1. Intel IOH-36D/ICH10R Chipset: System Block Diagram**

Note: This is a general block diagram. Please see Chapter 5 for details.



## 1-4 Contacting Supermicro

**Headquarters**

| | |
|---|---|
| Address: | Super Micro Computer, Inc.<br>980 Rock Ave.<br>San Jose, CA 95131 U.S.A. |
| Tel: | +1 (408) 503-8000 |
| Fax: | +1 (408) 503-8008 |
| Email: | marketing@supermicro.com (General Information)<br>support@supermicro.com (Technical Support) |
| Web Site: | www.supermicro.com |

**Europe**

| | |
|---|---|
| Address: | Super Micro Computer B.V.<br>Het Sterrenbeeld 28, 5215 ML<br>'s-Hertogenbosch, The Netherlands |
| Tel: | +31 (0) 73-6400390 |
| Fax: | +31 (0) 73-6416525 |
| Email: | sales@supermicro.nl (General Information)<br>support@supermicro.nl (Technical Support)<br>rma@supermicro.nl (Customer Support) |

**Asia-Pacific**

| | |
|---|---|
| Address: | Super Micro Computer, Inc.<br>4F, No. 232-1, Liancheng Rd<br>Chung-Ho Dist., New Taipei City 235<br>Taiwan |
| Tel: | +886-(2) 8226-3990 |
| Fax: | +886-(2) 8226-3991 |
| Web Site: | www.supermicro.com.tw |

Technical Support:

| | |
|---|---|
| Email: | support@supermicro.com.tw |
| Tel: | +886-(2)-8226-3990 |

# Chapter 2

# Server Installation

## 2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 1026T-URF/1026T-UF up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that server system has come to you with the processors and memory preinstalled. If your system is not already fully integrated with a serverboard, processors, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

## 2-2 Unpacking the System

You should inspect the box the SuperServer 1026T-URF/1026T-UF was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Read the Rack and Server Precautions in the next section.

## 2-3 Preparing for Setup

The box the SuperServer 1026T-URF/1026T-UF was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

### Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.This product is for

installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

- This product is not suitable for use with visual display work place devices acccording to §2 of the the German Ordinance for Work with Visual Display Units.

## 2-4 Warnings and Precautions

### Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

### Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

## Rack Mounting Considerations

### *Ambient Operating Temperature*

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

### *Reduced Airflow*

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

### *Mechanical Loading*

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

### *Circuit Overloading*

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

### *Reliable Ground*

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

## 2-5 Installing the System into a Rack

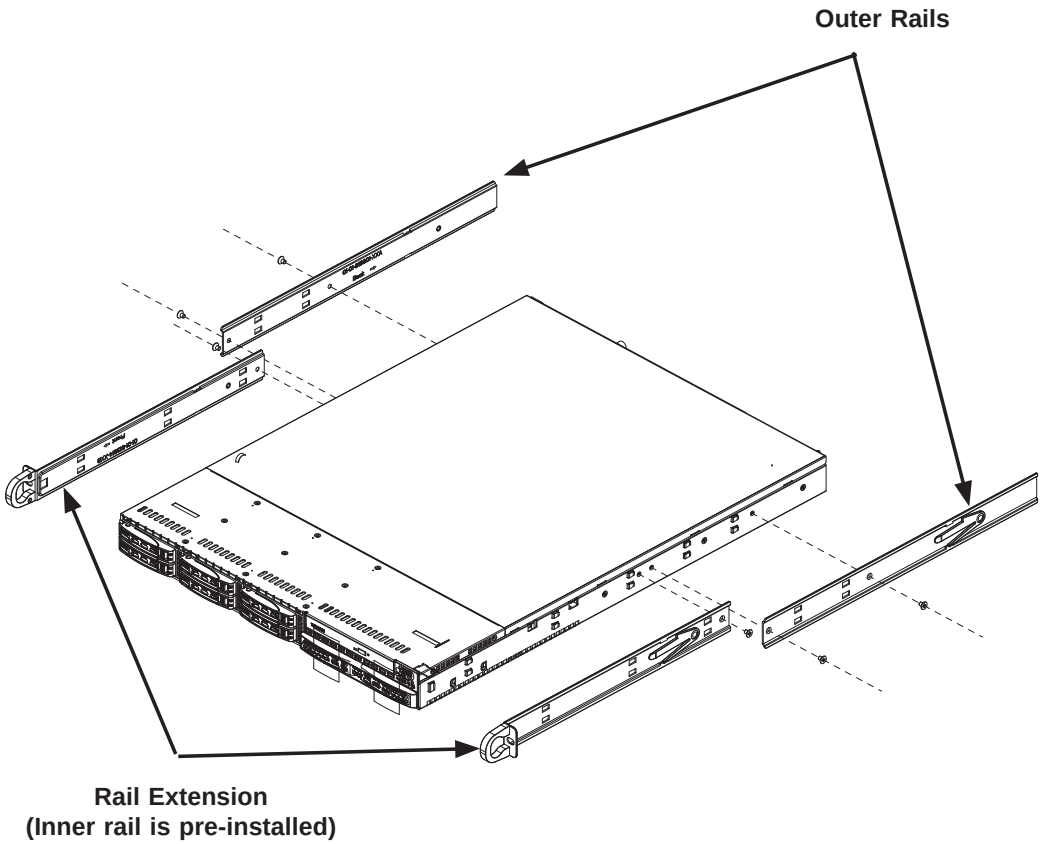
This section provides information on installing the SuperServer 1026T-URF/1026T-UF into a rack. If the system has already been mounted into a rack, you can skip ahead to Sections 2-5 and 2-6. **Note:** This rail will fit a rack between 26" and 33.5" deep.

There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the 1026T-URF/1026T-UF into a rack with the rack rails provided. You should also refer to the installation instructions that came with the rack unit you are using.

### Identifying the Sections of the Rack Rails

Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

**Figure 2-1. Identifying the Sections of the Rack Rails**



## Inner Rails

The SC113 chassis includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are pre-attached and do not interfere with normal use of the chassis if you decide not to use a server rack. Attach the inner rail extension to stabilize the chassis within the rack.

***Installing the Inner Rails (Figure 2-2)***

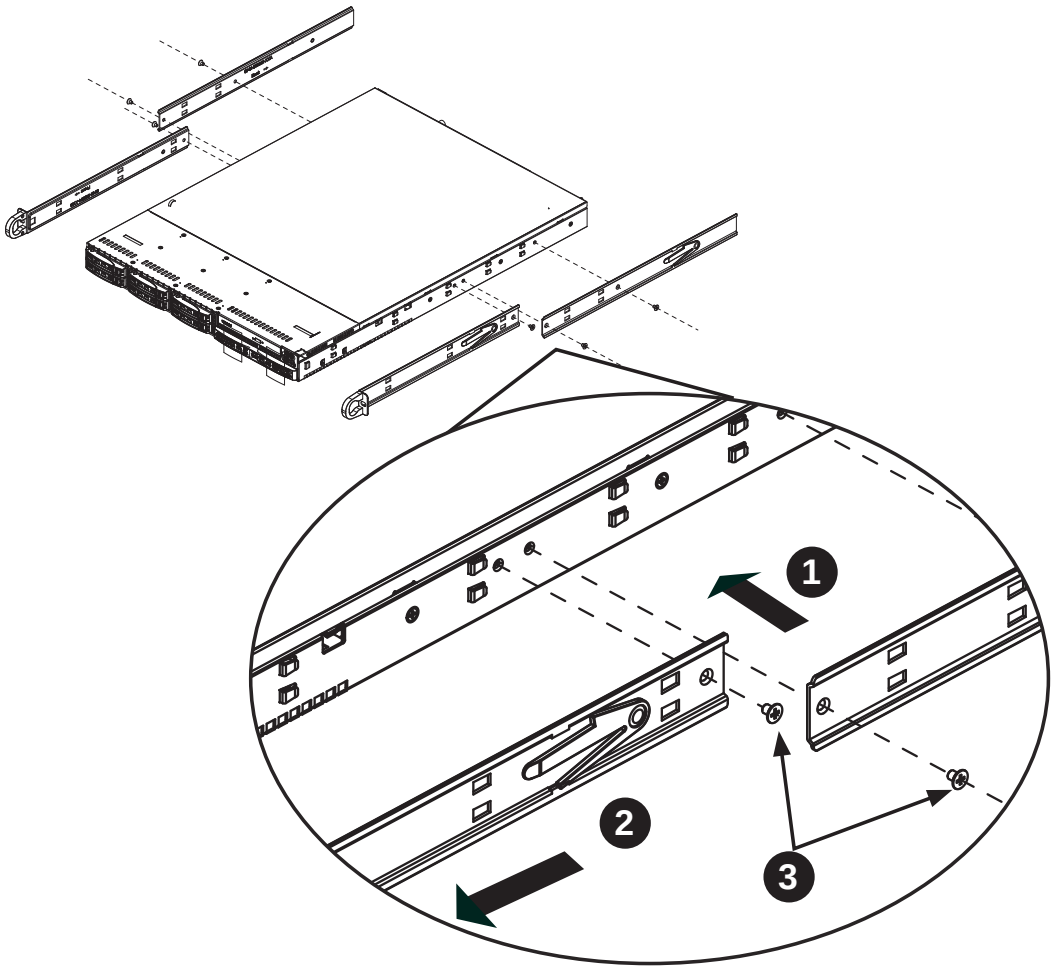
1. Place the inner rack extensions on the side of the chassis aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the pre-attached inner rail.

2. Slide the extension toward the front of the chassis.

3. Secure the chassis with two screws as illustrated.

4. Repeat steps 1-3 for the other inner rail extension.

**Figure 2-2. Installing Chassis Rails**



## Outer Rails

***Installing the Outer Rails to the Rack (Figures 2-3 and 2-4)***

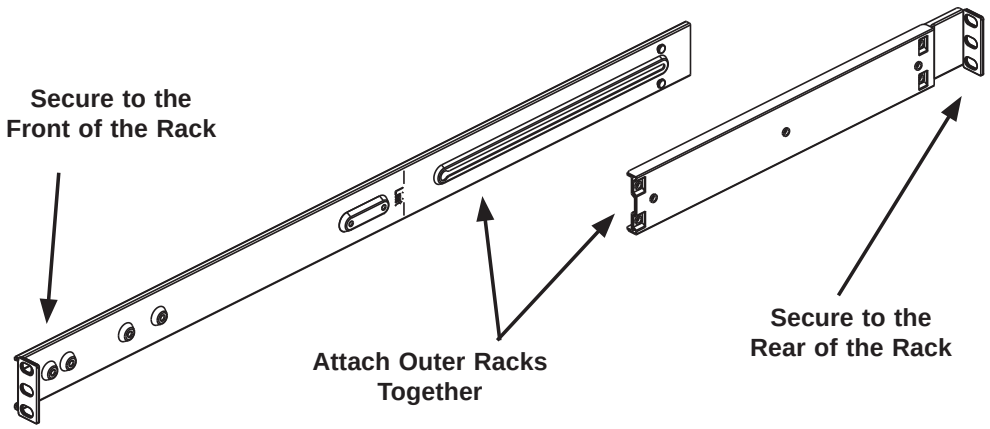
1. Attach the short bracket to the outside of the long bracket. You must align the pins with the slides. Also, both bracket ends must face the same direction.

2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.

3. Secure the long bracket to the front side of the outer rail with two M5 screws and the short bracket to the rear side of the outer rail with three M5 screws.

4. Repeat steps 1-4 for the left outer rail.

**Figure 2-3. Assembling the Outer Rails**




**Warning:** do not pick up the server with the front handles. They are designed to pull the system from a rack only.

**Warning!** Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

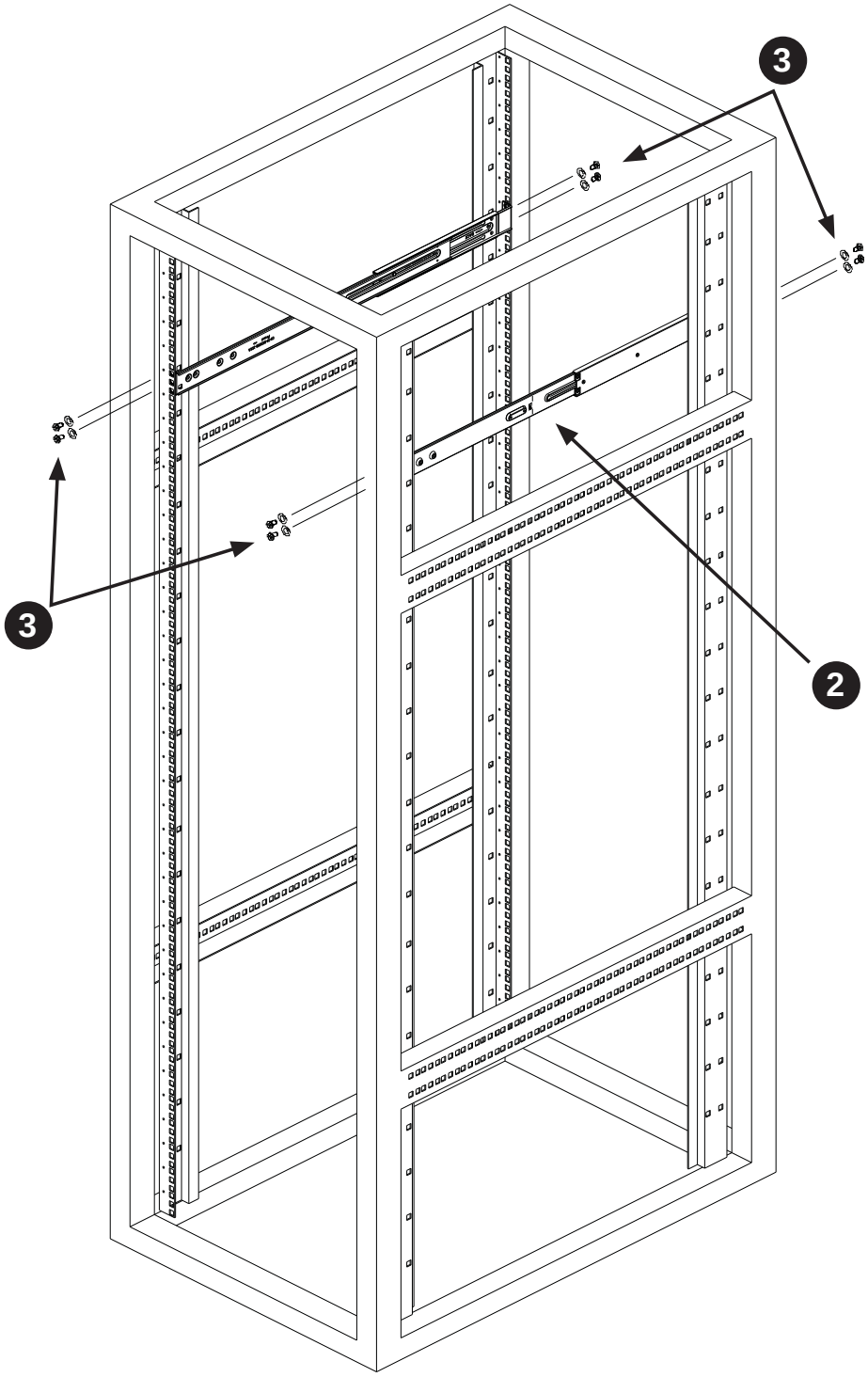



**Figure 2-4. Installing the Outer Rails to the Rack**

***Installing the Server into a Rack (Figure 2-5)***

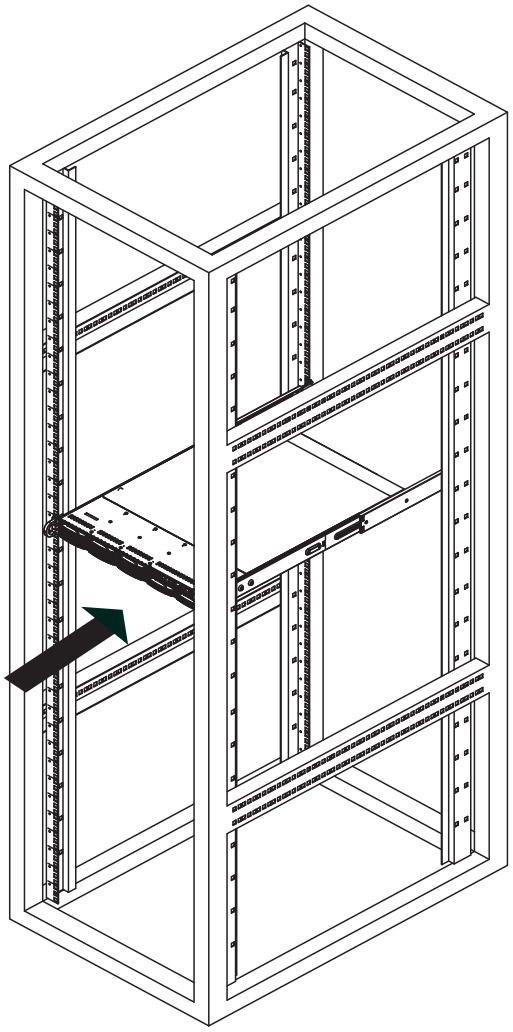
1. Confirm that chassis includes the inner rails and rail extensions . Also, confirm that the outer rails are installed on the rack.

2. Line chassis rails with the front of the rack rails.

3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click".

4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

**Figure 2-5. Installing the Server into a Rack**



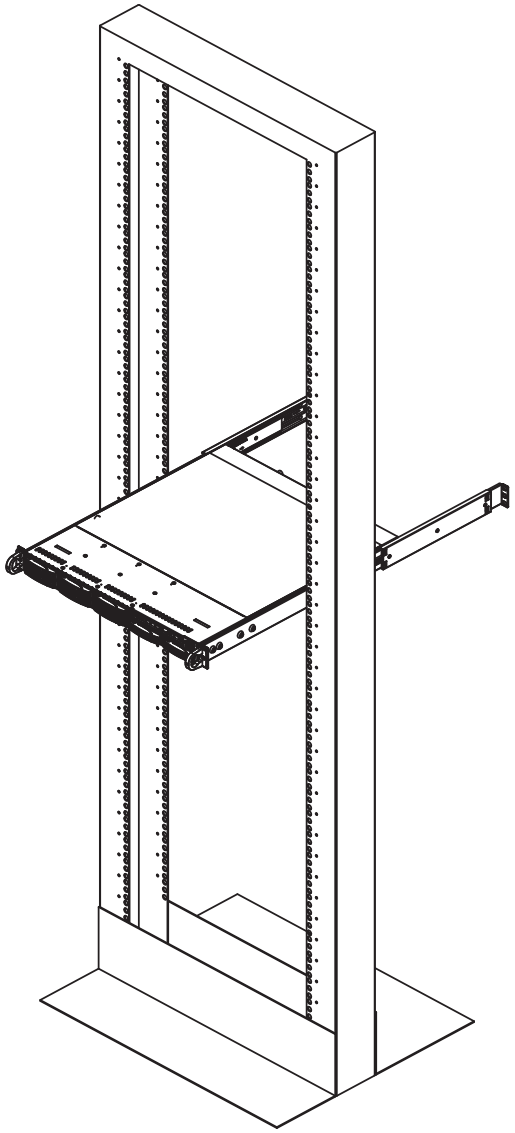
**Warning!** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

## Installing the Server into a Telco Rack

To install the SuperServer 1026T-URF/1026T-UF into a Telco type rack, use two L-shaped brackets on either side of the chassis (four total). First, determine how far follow the server will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it. Then attach the two front brackets to each side of the chassis, then the two rear brackets positioned with just enough space to accommodate the width of the telco rack. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

**Figure 2-6. Installing the Server into a Telco Rack**



## 2-6 Checking the Serverboard Setup

After you install the 1026T-URF/1026T-UF in the rack, you will need to open the unit to make sure the serverboard is properly installed and all the connections have been made.

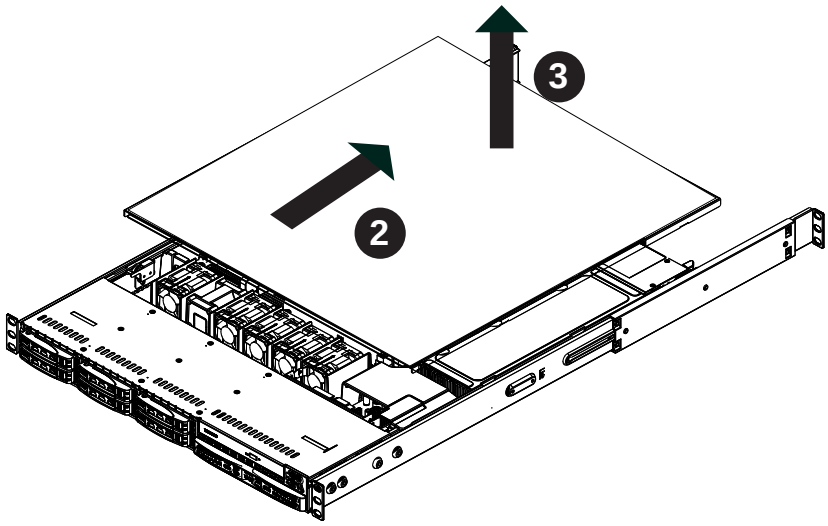
***Removing the Chassis Cover (Figure 2-5)***

1. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click").
2. Remove the screws securing the top cover to the chssis.
3. Slide the cover toward the rear of the chassis.
4. Lift the cover off the chassis.

***Checking the Components***

1. You should have one or two processors already installed into the serverboard. Each processor needs its own heatsink. See Chapter 5 for instructions on processor and heatsink installation.

**Figure 2-5: Removing the Chassis Cover**



2. Your server system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Chapter 5.

3. If desired, you can install add-on cards to the system. See Chapter 5 for details on installing PCI add-on cards.

4. Make sure all power and data cables are properly connected and not blocking the chassis airflow. See Chapter 5 for details on cable connections. Also, check the air seals for damage. The air seals are located under the blower fan and beneath the frame cross section that separates the drive bay area from the serverboard area of the chassis.

## 2-7 Checking the Drive Bay Setup

Next, you should check to make sure the hard drives have been properly installed and all connections have been made.

***Checking the Drives***

1. For servicing the hard drives, you will need to remove the top chassis cover.

2. If you need to remove or install hard drives, please refer to Chapter 6.

***Checking the Airflow***

1. Airflow is provided by four counter-rotating fans. The system component layout was carefully designed to direct sufficient cooling airflow to the components that generate the most heat.

2. Note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

***Providing Power***

1. The last thing you must do is to provide input power to the system. Plug the power cord from the power supply unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).

2. Turn on the power switch on the back of the power supply, then depress the power button on the front chassis control panel.

# Chapter 3

# System Interface

## 3-1 Overview

There are several LEDs on the control panel to keep you constantly informed of the overall status of the system as well as the three buttons described below.

## 3-2 Control Panel Buttons

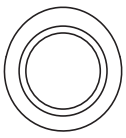
There are three buttons located on the front of the chassis: a reset button, a power on/off button and a UID button.

### Reset

Use the reset button to reboot the system.

### Power

This is the main power button, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.



### UID

Depressing the UID (unit identifier) button illuminates an LED on both the front and rear of the chassis for easy system location in large stack configurations. The LED will remain on until the button is pushed a second time. Another UID button on the rear of the chassis serves the same function. See the table in Figure 3-1 for descriptions of UID LED states.

## 3-3 Control Panel LEDs

The control panel located on the front of the SC113T chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

### Universal Information LED

When this LED blinks red quickly, it indicates a fan failure and when blinking red slowly a power failure. This LED will be blue when used for UID (Unit Identifier). When on continuously it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly (see Chapter 5). This LED will remain flashing or on as long as the indicated condition exists. See the table below for descriptions of the LED states.

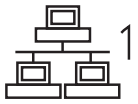
**Figure 3-1. Universal Information LED States**

| Universal Information LED States | |
|---|---|
| State | Indication |
| Fast Blinking Red (1x/sec) | Fan Fail |
| Solid Red | CPU Overheat |
| Slow Blinking Red (1x/4 sec) | Power Fail |
| Solid Blue | Local UID Button Depressed |
| Blinking Blue | IPMI-Activated UID |

**Note:** deactivating the UID LED must be performed in the same way it was activated. (If the UID LED was activated via IPMI, you can only turn the LED off via IPMI and not with the UID button.)

### NIC2

Indicates network activity on LAN2 when flashing.




### NIC1

Indicates network activity on LAN1 when flashing.

### HDD

Indicates DVD-ROM/hard drive activity when flashing.

### Power

Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

## 3-4 Hard Drive Carrier LEDs

Each hard drive carrier has two LEDs.

- **Green:** When illuminated, the green LED on the front of the drive carrier indicates drive activity. A connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.

- **Red:** The red LED indicates two states. When blinking, it indicates the drive is rebuilding. When solid, it indicates a drive failure. If a drive fails, you should be notified by your system management software. Please refer to Chapter 6 for instructions on replacing failed drives.

# Chapter 4

# Standardized Warning Statements for AC Systems

## 4-1 About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our web site at http://www.supermicro.com/about/policies/safety_information.cfm.

### Warning Definition

**Warning!**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

**警告の定義**

**この警告サインは危険を意味します。**

**人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、**

**電気回路に含まれる危険性**に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

**תקנון הצהרות אזהרה**

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

## Installation Instructions

**Warning!**

Read the installation instructions before connecting the system to the power source.

**設置手順書**

**システムを電源に接続する前に、設置手順書をお読み下さい。**

警告
将此系统连接电源前,请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

## Circuit Breaker

**Warning!**

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

**サーキット・ブレーカー**

**この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。**

**保護装置の定格が250 V、20 Aを超えないことを確認下さい。**

警告
此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

警告
此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

**מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A**

هذا المنتج يعتمد على معدات الحماية من الدوائرالقصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 220V, 20A.

## Power Disconnection Warning

**Warning!**

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

**電源切断の警告**

**システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、**
**システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。**

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

**אזהרה !**

**יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.**

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل
الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

## Equipment Installation

**Warning!**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**機器の設置**

**トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。**

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

**אזהרה !**

**צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.**

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

## Restricted Area

**Warning!**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

**アクセス制限区域**

**このユニットは、アクセス制限区域に設置されることを想定しています。**

**アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。**

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

**אזור עם גישה מוגבלת**

**אזהרה !**
**יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת כלי אבטחה בלבד (מפתח, מנעול וכד׳).**

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للالأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

## Battery Handling

**Warning!**

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

**電池の取り扱い**

**電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。**

警告
电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告
電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

**אזהרה !**
**קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.**

**סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.**

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك
استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

## Redundant Power Supplies

**Warning!**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

**冗長電源装置**

**このユニットは複数の電源装置が接続されている場合があります。**

**ユニットの電源を切るためには、すべての接続を取り外さなければなりません。**

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

**אם קיים יותר מספק אחד**

**אזהרה!**

**ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.**

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

## Backplane Voltage

**Warning!**

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

**バックプレーンの電圧**
**システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。**
**修理する際には注意ください。**

警告
当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告
當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

**מתח בפנל האחורי**

**אזהרה !**
**קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.**

هناك خطر من التيار الكهربائي أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

## Comply with Local and National Electrical Codes

**Warning!**

Installation of the equipment must comply with local and national electrical codes.

**地方および国の電気規格に準拠**
**機器の取り付けはその地方および国の電気規格に準拠する必要があります。**

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

**תיאום חוקי החשמל הארצי**

**אזהרה !**
**התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.**

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

## Product Disposal

**Warning!**

Ultimate disposal of this product should be handled according to all national laws and regulations.

**製品の廃棄**

**この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。**

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

**סילוק המוצר**

**אזהרה !**
**סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.**

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

## Hot Swap Fan Warning

**Warning!**

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

**ファン・ホットスワップの警告**

**シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。**

警告
当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告
當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

**אזהרה !**
**כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר**

من الممكن أن المراوح لا تزال تدورعند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

## Power Cable and AC Adapter

**Warning!**

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

**電源コードとACアダプター**

**製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。**

警告

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的連接線,電源線和電源適配器.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

**חשמליים ומתאמי AC**

**אזהרה !**

**כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרקמיקרו בלבד.**

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

# Notes

# Chapter 5

# Advanced Serverboard Setup

This chapter covers the steps required to install processors and heatsinks to the X8DTU-F serverboard, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. Remember to close the chassis completely when you have finished working on the serverboard to protect and cool the system sufficiently.

## 5-1 Handling the Serverboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the serverboard can cause it to bend if handled improperly, which may result in damage. To prevent the serverboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

### Unpacking

The serverboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

## 5-2 Processor and Heatsink Installation

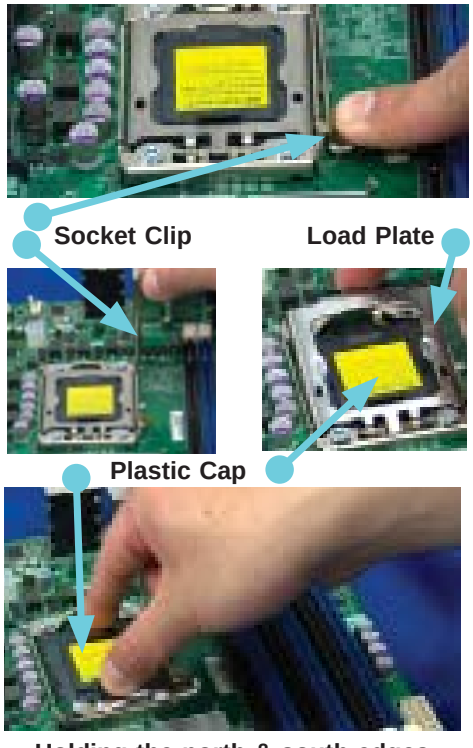
**Warning!** When handling the processor, avoid placing direct pressure on the label area of the fan. Also, do not place the serverboard on a conductive surface, which can damage the BIOS battery and prevent the system from booting up.

- Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the serverboard into the chassis before you install the CPU heatsinks.
- When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro web site for updates on CPU support.

### Installing LGA1366 Processors

1. Starting with CPU1, press the socket clip to release the load plate, which covers the CPU socket, from its locked position.
2. Gently lift the socket clip to open the load plate.
3. Hold the plastic cap at its north and south center edges to remove it from the CPU socket.

**Note**: The photos on this page and succeeding pages are for illustration purposes only. They do not necessarily reflect the exact product(s) described in this manual.




**Holding the north & south edges**

1. After removing the plastic cap, use your thumb and the index finger to hold the CPU at the north and south center edges.

2. Align the CPU key (the semi-circle cutout) with the socket key (the notch below the gold color dot on the side of the socket).

3. Once the CPU and the socket are aligned, carefully lower the CPU straight down into the socket. Do not rub the CPU against the surface of the socket or its pins to avoid damaging the CPU or the socket.

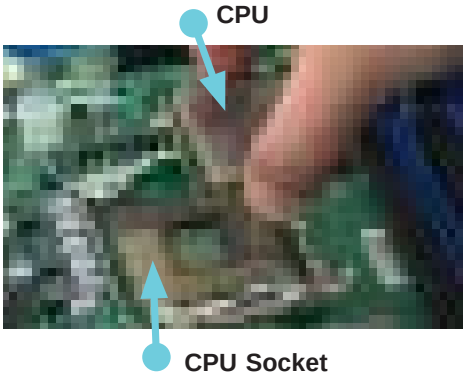
4. With the CPU in the socket, inspect the four corners of the CPU to make sure that it sits level and is properly installed.

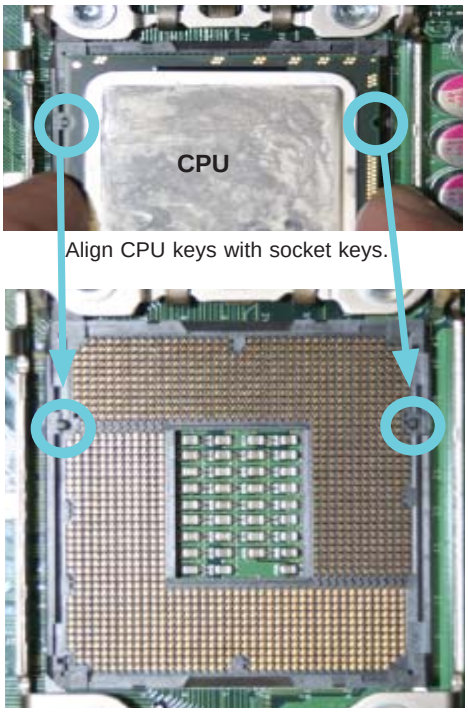
5. Once the CPU is securely seated in the socket, lower the CPU load plate to the socket.

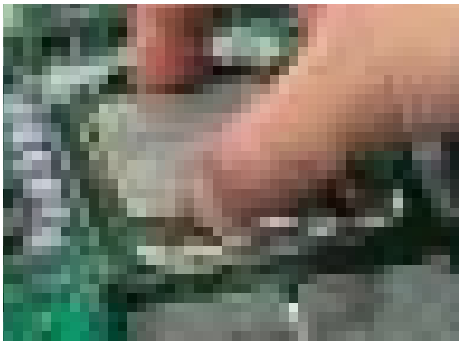
6. Use your thumb to gently push the socket clip down to the clip lock.

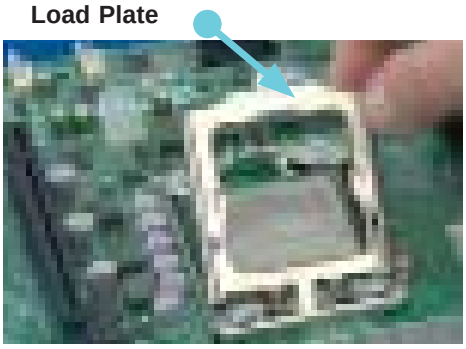
7. Repeat for the CPU2 socket for a dual-processor configuration.

**Important**! Please save the plastic cap. The serverboard must be shipped with the plastic cap properly installed to protect the CPU socket pins. Shipment without the plastic cap properly installed may cause damage to the socket pins.





## Installing the Heatsink

1. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.

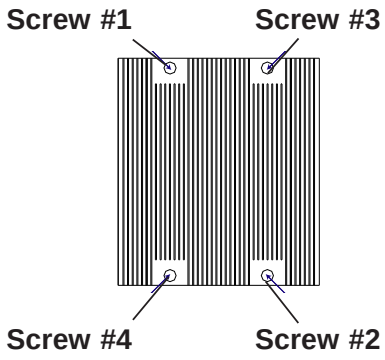
2. Remove the thin layer of protective film from the copper core of the heatsink.

**Warning**: The CPU may overheat if the protective film is not removed from the heatsink.

3. Apply the proper amount of thermal grease on the CPU. If your heatsink came with a thermal pad, please ignore this step.

4. Screw in two diagonal screws (i.e. the #1 and the #2 screws) until just snug (do not over-tighten the screws, which may damage the CPU.)

5. Finish the installation by fully tightening all four screws.



## Removing the Heatsink

**Warning:** We do not recommend removing the CPU or the heatsink. If you do need to remove the heatsink, please follow the instructions below to prevent damage to the CPU or other components.

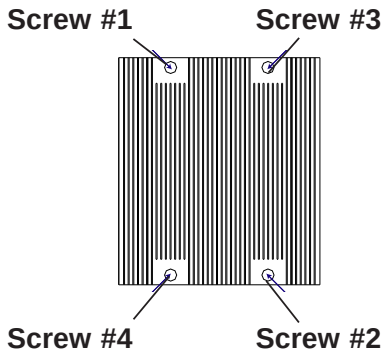
1. Unplug the power cord from the power supply.

1. Unscrew and remove the heatsink screws in the sequence shown in the picture below.

2. Hold the heatsink and gently wiggle it to loosen it from the CPU. (Do not use excessive force when doing this!)

3. Once the heatsink is loosened, remove it from the CPU.

4. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease before you re-install the heatsink.



## 5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the serverboard. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

### Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

The following data cables (with their serverboard connector locations noted) should be connected. See the serverboard layout diagram in this chapter for connector locations.

- DVD-ROM drive cable (SATA4)
- SATA cables (SATA0 ~ SATA3)
- Control Panel cable (JF1, see next page)

### Connecting Power Cables

The X8DTU-F has a 20-pin primary power supply connector designated "JPW1" for connection to the ATX power supply. Connect the appropriate connector from the power supply to JPW1 to supply power to the serverboard. See the Connector Definitions section in this chapter for power connector pin definitions.

In addition, your power supply must be connected to the 8-pin Processor Power connectors at JPW2 and JPW3.

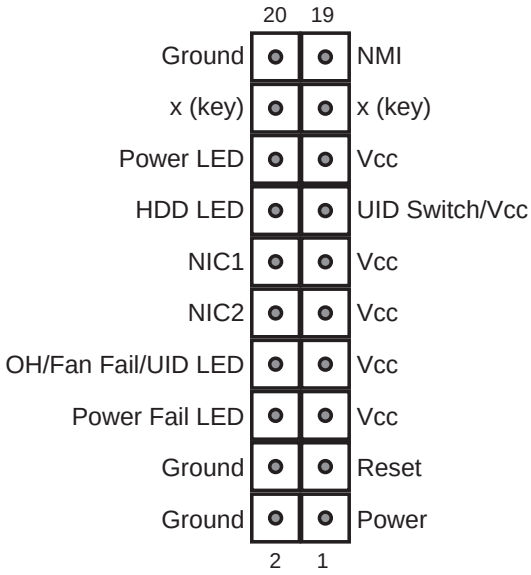
### Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header.

All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. The red wire in the ribbon cable plugs into pin 1 of JF1. Connect the other end of the cable to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

See the Connector Definitions section in this chapter for details and pin descriptions of JF1.

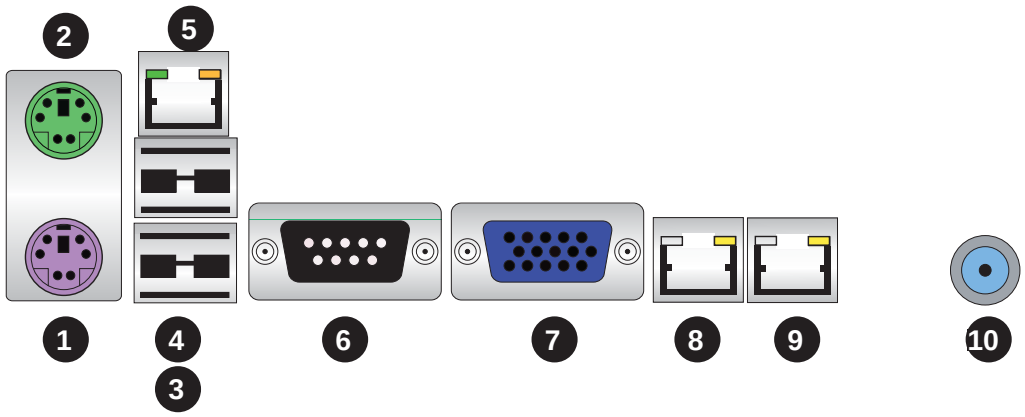
**Figure 5-1. Front Control Panel Header Pins (JF1)**




## 5-4 I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

**Figure 5-2. Rear Panel I/O Ports**




| Rear I/O Ports | |
|---|---|
| 1. Keyboard | 6. COM1 |
| 2. PS/2 Mouse | 7. VGA Port |
| 3. USB0 | 8. LAN1 |
| 4. USB1 | 9. LAN2 |
| 5. IPMI LAN | 10. UID Button |

## 5-5 Installing Memory

Note: Check the Supermicro web site for recommended memory modules.

***CAUTION***

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

***Installing DIMMs***

1. Insert the desired number of DIMMs into the memory slots, starting with slot P1-DIMM1A. For best performance, install memory modules of the same type and same speed in the slots as indicated in the tables below.

2. Insert each DIMM vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly (see Figure 5-5).

3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules

**Memory Support**

The X8DTU-F supports up to 96 GB of registered ECC DDR3-1333/1066/800 SDRAM in 12 slots. (RDIMM modules are supported.)

**Notes**: Memory speed support depends on the type of CPU used. Due to OS limitations, some operating systems may not show more than 4 GB of memory. Due to

| Memory Population for Optimal Performance With One CPU (CPU1) Installed | | | | | | |
|---|---|---|---|---|---|---|
| | Branch 0 | | Branch 1 | | Branch 2 | |
| 3 DIMMs | P1 DIMM1A | | P1 DIMM2A | | P1 DIMM3A | |
| 6 DIMMs | P1 DIMM1A | P1 DIMM1B | P1 DIMM2A | P1 DIMM2B | P1 DIMM3A | P1 DIMM3B |

| Memory Population for Optimal Performance With One CPU (CPU2) Installed | | | | | | |
|---|---|---|---|---|---|---|
| | Branch 0 | | Branch 1 | | Branch 2 | |
| 3 DIMMs | P2 DIMM1A | | P2 DIMM2A | | P2 DIMM3A | |
| 6 DIMMs | P2 DIMM1A | P2 DIMM1B | P2 DIMM2A | P2 DIMM2B | P2 DIMM3A | P2 DIMM3B |

| Memory Population for Optimal Performance With Two CPUs Installed | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CPU1 | | | | | | CPU2 | | | | | |
| | Branch 0 | | Branch 1 | | Branch 3 | | Branch 0 | | Branch 1 | | Branch 3 | |
| 6 DIMMs | 1A | | 2A | | 3A | | 1A | | 2A | | 3A | |
| 12 DIMMs | 1A | 1B | 2A | 2B | 3A | 3B | 1A | 1B | 2A | 2B | 3A | 3B |

memory allocation to system devices, memory remaining available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. (Refer to the Memory Availability Table below for details.)

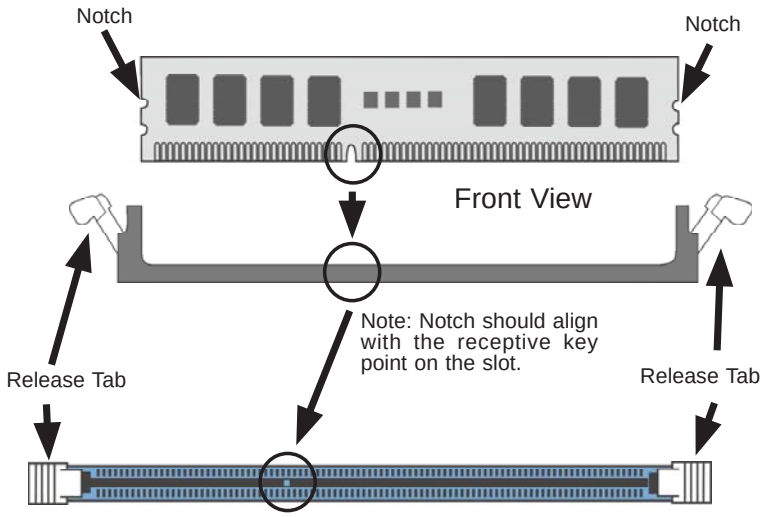
| Possible System Memory Allocation & Availability | | |
|---|---|---|
| System Device | Size | Physical Memory Remaining (4 GB Total System Memory) |
| Firmware Hub flash memory (System BIOS) | 1 MB | 3.99 |
| Local APIC | 4 KB | 3.99 |
| Area Reserved for the chipset | 2 MB | 3.99 |
| I/O APIC (4 Kbytes) | 4 KB | 3.99 |
| PCI Enumeration Area 1 | 256 MB | 3.76 |
| PCI Express (256 MB) | 256 MB | 3.51 |
| PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary- | 512 MB | 3.01 |
| VGA Memory | 16 MB | 2.85 |
| TSEG | 1 MB | 2.84 |
| Memory available to System BIOS & OS applications | | 2.84 |

| DIMM Population Table | | | | |
|---|---|---|---|---|
| **DIMM Slots per Channel** | **DIMMs Populated per Channel** | **DIMM Type (Reg.= Registered)** | **Speeds (in MHz)** | **Ranks per DIMM (any combination; SR=Single Rank, DR=Dual Rank, QR=Quad Rank)** |
| 2 | 1 | Reg. DDR3 ECC | 800,1066,1333 | SR or DR |
| 2 | 1 | Reg. DDR3 ECC | 800,1066 | QR |
| 2 | 2 | Reg. DDR3 ECC | 800,1066 | Mixing SR, DR |
| 2 | 2 | Reg. DDR3 ECC | 800 | Mixing SR, DR,QR |

**Figure 5-3. Installing DIMM into Slot**

**To Install:** Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

**To Remove:**
Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.




Top View of DDR3 Slot

## 5-6 Adding PCI Cards

### PCI Expansion Slots

Riser cards are used to support add-on cards to the system. See the tables below for the expansion cards that may be used in the SC113TQ-R650U/SC113TQ-560U chassis.

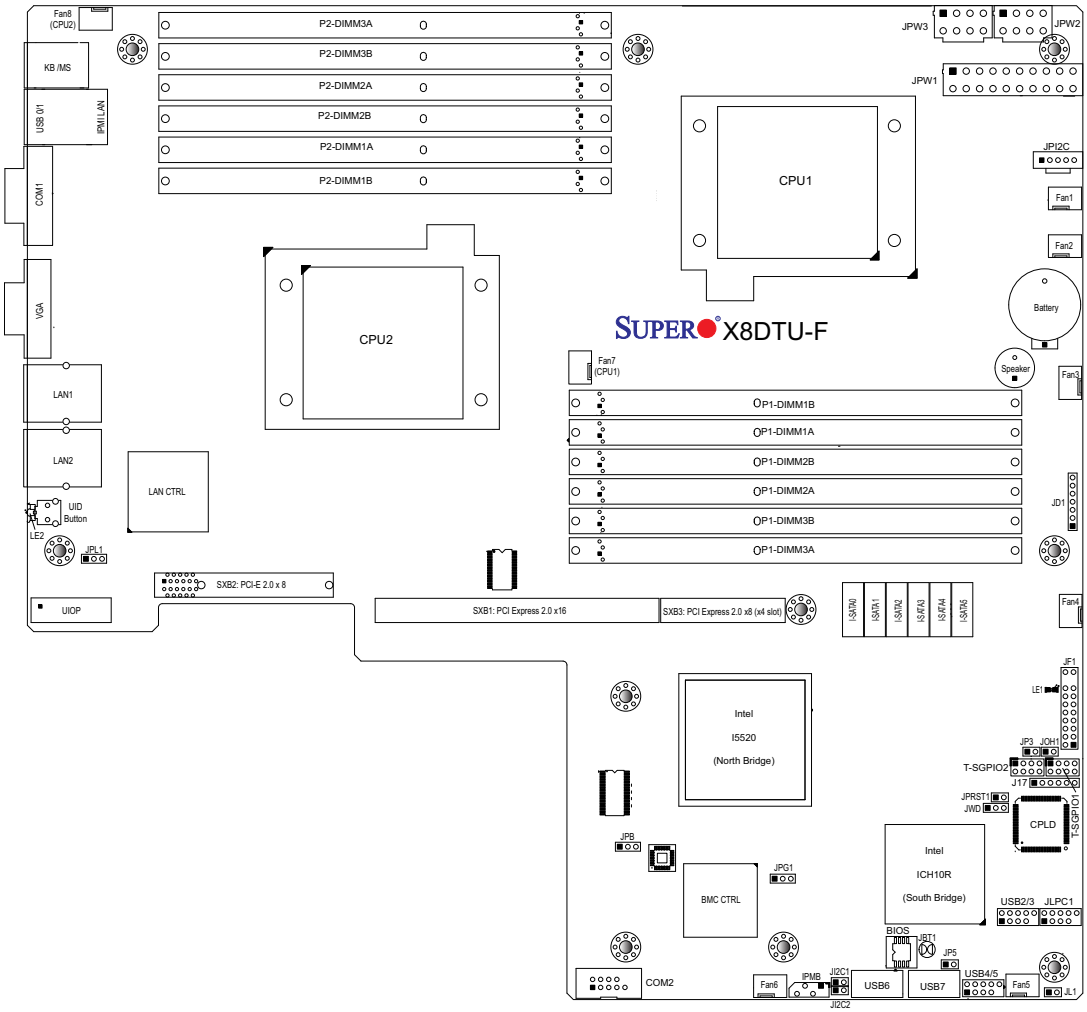
### PCI Card Installation

Before installing a PCI add-on card, make sure you install it into the correct riser card. Begin by releasing the locking tab that corresponds to the slot you wish to populate. Insert the expansion card into the correct riser card, pushing down with your thumbs evenly on both sides of the card.

| PCI Slot/Card Configurations | |
|---|---|
| **Left Side Riser Card** | **Expansion Card Supported** |
| RSC-R1UU-UE16 (pre-installed) | 1x UIO card and 1x PCI-E x16 card |
| RSC-R1UU-E8PR (optional) | AOC-PG-i2+ for 2x LAN ports |

## 5-7 Serverboard Details

**Figure 5-4. SUPER X8DTU-F Layout**
(not drawn to scale)




**Notes:**

Jumpers not indicated are for test purposes only.

When LE1 LED is on, the onboard power connection is on. Make sure to unplug the power cables before removing or installing components.

IPMI (Intelligent Platform Management Interface) 2.0 is supported by the X8DTU-F. For more information on IPMI configuration, refer to the Embedded BMC IPMI User Guide @http://www.supermicro.com/support/manuals/.

**Warning**

To provide adequate power to the add-on cards installed on the serverboard, please connect the UIOP PWR connector to the power supply for these cards to work properly.

## X8DTU-F Quick Reference

| Jumper | Description | Default Setting |
|---|---|---|
| JBT1 | CMOS Clear | (See Section 5-9) |
| JI²C1/JI²C2 | SMB to PCI-Exp. Slots | Open (Disabled) |
| JP3 | ME Mode Select | Open (Normal) |
| JP5 | ME Recovery | Open (Normal) |
| JPG1 | VGA Enable/Disable | Pins 1-2 (Enabled) |
| JPL1 | LAN1/2 Enable/Disable | Pins 1-2 (Enabled) |
| JPRST1 | BMC/PHY Reset Enable/Disable | Open (Normal) |
| JWD1 | Watch Dog | Pins 1-2 (Reset) |

| Connector | Description |
|---|---|
| COM1/COM2 | Serial Port/Header |
| FAN 1-8 | Chassis/CPU Fan Headers |
| Floppy | Floppy Disk Drive Connector |
| IPMB | IPMB I²C Header (for an IPMI Card) |
| I-SATA0 ~ I-SATA5 | SATA Ports |
| JD1 | Onboard Speaker/Power LED |
| JF1 | Control Panel Connector |
| JL1 | Chassis Intrusion Header |
| JOH1 | Overheat Warning Header |
| JPI²C | Power Supply SMBus I²C Header |
| JPW1 | 20-Pin ATX Power Connector |
| JPW2/JPW3 | 8-pin Processor Power Connectors |
| LAN1/2 | Gigabit Ethernet (RJ45) Ports |
| IPMI_LAN | IPMI 2.0 Dedicated LAN |
| T-SGPIO-1/T-SGPIO-2 | Serial General Purpose Input/Output Headers |
| UIOP | UIO Card Power Supply Header |
| USB0/1, USB6, USB7 | Universal Serial Bus (USB) Ports |
| USB2/3, USB4/5 | Universal Serial Bus (USB) Headers |

| LED | Description |
|---|---|
| LE1 | Onboard Standby PWR warning LED Indicator |
| LE2 | Unit Identification (UID) LED |

## 5-8 Connector Definitions

### ATX Power Connector

The primary ATX power supply connector meets the SSI EPS 12V specification. Make sure that the orientation of the connector is correct. See the table on the right for pin definitions.

**ATX Power 20-pin Connector Pin Definitions (JPW1)**

| Pin# | Definition | Pin # | Definition |
|---|---|---|---|
| 11 | PS On | 1 | Ground |
| 12 | 5VSB | 2 | Ground |
| 13 | Ground | 3 | Ground |
| 14 | Ground | 4 | Ground |
| 15 | Ground | 5 | Ground |
| 16 | NC2 | 6 | NC1 |
| 17 | 12V | 7 | 12V |
| 18 | 12V | 8 | 12V |
| 19 | 12V | 9 | 12V |
| 20 | 12V | 10 | 12V |

### Processor Power Connectors

JPW2 and JPW3 must also be connected to the power supply to provide power for the processor(s). See the table on the right for pin definitions.

**Processor Power Pin Definitions (JPW2/JPW3)**

| Pins | Definition |
|---|---|
| 1 through 4 | Ground |
| 5 through 8 | +12V |

**Warning**: To prevent damage to your power supply or serverboard, please use a power supply that contains a 20-pin and two 8-pin power connectors. Be sure to connect these power connectors to the 20-pin and the two 8-pin power connectors on your serverboard for adequate power supply to your system. Failure to do so will void the manufacturer warranty on your power supply and serverboard.

### NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

**NMI Button Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 19 | Control |
| 20 | Ground |

### Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

**Power LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 15 | Vcc |
| 16 | Control |

### HDD LED

The HDD (IDE Hard Disk Drive) LED connection is located on pins 13 and 14 of JF1. Attach the IDE hard drive LED cable to display disk activity. Refer to the table on the right for pin definitions.

**HDD LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 13 | Vcc |
| 14 | HD Active |

### NIC1 LED

The NIC1 (Network Interface Controller) LED connection is located on pins 11 and 12 of JF1. Attach the NIC1 LED cable to display network activity. Refer to the table on the right for pin definitions.

**NIC1 LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 11 | Vcc |
| 12 | Ground |

### NIC2 LED

The NIC2 (Network Interface Controller) LED connection is located on pins 9 and 10 of JF1. Attach the NIC2 LED cable to display network activity. Refer to the table on the right for pin definitions.

**NIC2 LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 9 | Vcc |
| 10 | Ground |

### Overheat (OH)/Fan Fail/PWR Fail/ UID LED

Connect an LED to pins 7 and 8 of JF1 to provide advanced warning of chassis overheating or fan failure. These pins also work with the front UID indicator, which will activate as either a solid or flashing blue LED depending on whether the LED was activated via IPMI or the UID button. Refer to the tables on the right for pin definitions and status indicators.

**Universal Info. LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 7 | Vcc |
| 8 | Control |

**Red LED Indications**

| State | Indication |
|---|---|
| Solid | Overheat |
| Blinking (fast) | Fan Fail |
| Blinking (slow) | Power Fail |

**Blue LED Indications**

| State | Indication |
|---|---|
| Solid | UID (via Button) |
| Blinking | UID (via IPMI) |

### Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

| Power Fail LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 5 | Vcc |
| 6 | Ground |

### Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to the hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

| Reset Button Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 3 | Reset |
| 4 | Ground |

### Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (see the Power Button Mode setting in BIOS). To turn off the power when set to suspend mode, depress the button for at least 4 seconds. Refer to the table on the right for pin definitions.

| Power Button Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 1 | PW_ON |
| 2 | Ground |

### Universal Serial Bus Ports

Two Universal Serial Bus ports are located on the I/O backplane. USB0 is the bottom connector and USB1 is the top connector. Two Type A ports (USB6 and USB7) are also included on the serverboard (see board layout for locations) See the table on the right for pin definitions.

| Universal Serial Bus Ports Pin Definitions (USB0/1, USB6/7) | |
|---|---|
| Pin # | Definition |
| 1 | +5V |
| 2 | PO- |
| 3 | PO+ |
| 4 | Ground |
| 5 | N/A |

### Universal Serial Bus Headers

Four additional USB headers (USB2/3 and USB4/5) are included on the serverboard. These may be used for front side access. A USB cable (not included) is needed for the connection. See the table on the right for pin definitions.

**Universal Serial Bus Headers Pin Definitions (USB2/3, USB4/5)**

| USB2, USB4 | | USB3, USB5 | |
|---|---|---|---|
| Pin # | Definition | Pin # | Definition |
| 1 | +5V | 1 | +5V |
| 2 | PO- | 2 | PO- |
| 3 | PO+ | 3 | PO+ |
| 4 | Ground | 4 | Ground |
| 5 | Key | 5 | NC |

### Serial Ports

The COM1 serial port is located on the IO backplane. COM2 is a header on the serverboard (see serverboard layout for location). See the table on the right for pin definitions.

**Serial Port Pin Definitions (COM1, COM2)**

| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RXD | 7 | RTS |
| 3 | TXD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | 10 | NC |

**Note:** Pin 10 is included on the header but not on the port. NC indicates no connection.

### Fan Headers

The X8DTU-F has eight headers, designated Fan1 through Fan8. FAN1 through FAN6 are for chassis/system fans while FAN7 and FAN8 are used to CPU heatsink fans. Their speed is controlled via Thermal Management with a BIOS setting. See the table on the right for pin definitions.

**Fan Header Pin Definitions (FAN1-8)**

| Pin# | Definition |
|---|---|
| 1 | Ground (Black) |
| 2 | +12V (Red) |
| 3 | Tachometer |
| 4 | PWM Control |

### Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach the appropriate cable to inform you of a chassis intrusion.

**Chassis Intrusion Pin Definitions (JL1)**

| Pin# | Definition |
|---|---|
| 1 | Intrusion Input |
| 2 | Ground |

### Power LED/Speaker

On the JD1 header, pins 1-3 are for a power LED and pins 4-7 are for an external speaker. See the table on the right for speaker pin definitions.

**Note**: The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

**Speaker Connector Pin Definitions (JD1)**

| Pin # | Function | Definition |
|---|---|---|
| 4 | + | Speaker data (red wire) |
| 5 | Key | No connection |
| 6 | | Key |
| 7 | | Speaker data |

### ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse ports are located beside the USB ports. See the table on the right for pin definitions.

**PS/2 Keyboard and Mouse Ports Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | Data |
| 2 | NC |
| 3 | Ground |
| 4 | VCC |
| 5 | Clock |
| 6 | NC |

### Overheat LED

Connect an LED to the JOH1 header to provide warning of a chassis overheating condition. See the table on the right for pin definitions.

**Overheat LED Pin Definitions (JOH1)**

| Pin# | Definition |
|---|---|
| 1 | +5V |
| 2 | OH Active |

### SGPIO

The two headers labeled T-SGPIO-1 and T-SGPIO-2 are for SGPIO (Serial General Purpose Input/Output). SGPIO supports serial link interfaces for onboard SATA and SAS ports. Connect the appropriate cables from the backplane to the SGPIO1 and SGPIO2 headers to utilize SATA/SAS management functions on your system.

**SGPIO Headers Pin Definitions (T-SGPIO-1, T-SGPIO-2)**

| Pin# | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | NC | 2 | NC |
| 3 | Ground | 4 | Data |
| 5 | Load | 6 | Ground |
| 7 | NC | 8 | NC |

**Note:** NC indicates no connection.

### Power SMB (I²C) Connector

The Power System Management Bus (I²C) header (JPI²C) is used to monitor the power supply, fan and system temperatures. See the table on the right for pin definitions.

**PWR SMB Pin Definitions (JPI²C)**

| Pin# | Definition |
|---|---|
| 1 | Clock |
| 2 | Data |
| 3 | PWR Fail |
| 4 | Ground |
| 5 | +3.3V |

### IPMB I²C

A System Management Bus header for the IPMI slot is located at IPMB. Connect the appropriate cable here to use the IPMB I²C connection on your system.

**IPMB I²C Pin Definitions (IPMB)**

| Pin# | Definition |
|---|---|
| 1 | Data |
| 2 | Ground |
| 3 | Clock |
| 4 | No Connection |

### UID Buttons

There are two Unit Identification (UID) buttons on the serverboard. The Front Panel UID Switch connects to pin 13 of JF1. The Rear UID Switch (SW1) is located next to LAN2. Pushing the UID switch on the Front Control Panel will illuminate both the Rear UID and the Control Panel UID indicators. Push the either switch again to turn off both indicators. These UID indicators provide easy identification of a system that may be in need of service.

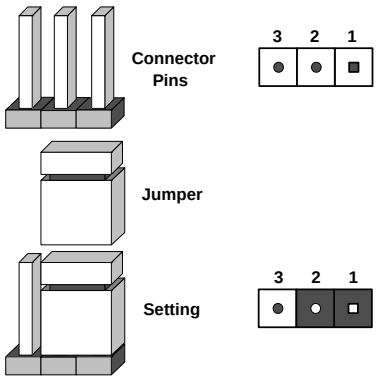
### LAN1/2 (Ethernet Ports)

Two Ethernet ports (designated LAN1 and LAN2) are located beside the VGA port on the I/O backplane. These ports accept RJ45 type cables.

# 5-9 Jumper Settings

### Explanation of Jumpers

To modify the operation of the serverboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram at right for an example of jumping pins 1 and 2. Refer to the serverboard layout page for jumper locations.




Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

### CMOS Clear

JBT1 is used to clear CMOS and will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

***To clear CMOS***

1. First power down the system and unplug the power cord(s).
2. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.
3. Remove the screwdriver (or shorting device).
4. Reconnect the power cord(s) and power on the system.

**Note:** *Do not use the PW_ON connector to clear CMOS.*

### VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

| VGA Enable/Disable Jumper Settings (JPG1) | |
|---|---|
| Jumper Setting | Definition |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

### LAN Enable/Disable

Change the setting of jumper JPL1 to enable or disable the onboard Ethernet (RJ45) ports LAN1 and LAN2. See the table on the right for jumper settings. The default setting is enabled.

| LAN Enable/Disable Jumper Settings (JPL1) | |
|---|---|
| Jumper Setting | Definition |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

### Watch Dog Enable/Disable

JWD1 controls the Watch Dog function. Watch Dog is a system monitor that can reboot the system when a software application "hangs". Pins 1-2 will cause WD to reset the system if an application hangs. Pins 2-3 will generate a non-maskable interrupt signal for the application that has hung. See the table on the right for jumper settings. Watch Dog must also be enabled in BIOS.

**Note:** When enabled, the user needs to write their own application software to disable the Watch Dog Timer.

| Watch Dog Jumper Settings (JWD1) | |
|---|---|
| Jumper Setting | Definition |
| Pins 1-2 | Reset |
| Pins 2-3 | NMI |
| Open | Disabled |

### VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

| VGA Enable/Disable Jumper Settings (JPG1) | |
|---|---|
| Jumper Setting | Definition |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

### SMB to PCI Express Slots

Jumpers JI$^2$C1 and JI$^2$C2 allow you to connect the System Management Bus (I$^2$C) to the PCI Express slots. The default setting is Open to disable the connection. See the table on the right for jumper settings.

| I$^2$C to PCI-Exp Jumper Settings (JI$^2$C1/2) | |
|---|---|
| Jumper Setting | Definition |
| Closed | Enabled |
| Open | Disabled |

### BMC/PHY Reset

Jumper JPRST1 allow the user to reset the Winbond WPCM450 BMC (Baseboard Management Controller) chip and the PHY chip. The default is set to Open for normal operation. See the table on the right for jumper settings.

| BMC/PHY Jumper Settings (JPRST1) | |
|---|---|
| Jumper Setting | Definition |
| Closed | Reset BMC & PHY |
| Open | Normall |

**Note:** For more information on IPMI configuration instructions, please refer to the Embedded Winbond BMC IPMI user guide posted on our website:

http://www.supermicro.com/support/manuals/.

### ME Mode Select

Closing jumper JP3 allows the user to bypass the SPI flash security and allow the manufacturer to flash the BIOS on the production line. See the table on the right for jumper settings.

| ME Mode Select Jumper Settings (JP3) | |
|---|---|
| Jumper Setting | Definition |
| Open | Normal |
| Closed | Manufacture Mode |

### ME Recovery

Jumper JP5 allows the user to select the ME Firmware Recovery Mode for BIOS or firmware recovery. When in this mode, only essential system functions will be supported. This mode cannot be used for online BIOS upgrades. See the table on the right for jumper settings.

| ME Recovery Select Jumper Settings (JP5) | |
|---|---|
| Jumper Setting | Definition |
| Open | Normal |
| Closed | ME Recovery |

# 5-10 Onboard Indicators

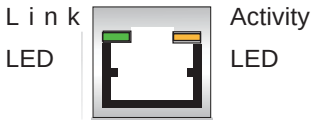
### LAN1/LAN2 LEDs

The Ethernet ports (located beside the VGA port) have two LEDs. On each Gigabit LAN port, one LED indicates activity when blinking while the other LED may be green, amber or off to indicate the speed of the connection. See the table on the right for the functions associated with the connection speed LED.

| LAN LED Connection Speed Indicator | |
|---|---|
| LED Color | Definition |
| Off | No connection or 10 Mb/s |
| Green | 100 Mb/s |
| Amber | 1 Gb/s |

### IPMI_Dedicated LAN LEDs

In addition to LAN1 and LAN2, the X8DTU-F has an IPMI_Dedicated LAN located on the IO backpanel. The amber LED indicates activity, while the Link LED may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.




| IPMI LAN Activity Indicator LED Settings | | |
|---|---|---|
| Color | Status | Definition |
| Amber | Flashing | Active |

| IPMI LAN Indicator LED Settings | |
|---|---|
| LED Color | Definition |
| Off | No Connection or 10 Mb/s |
| Green | 100 Mb/s |
| Amber | 1 Gb/s |

### LE1

An Onboard Power LED is located at LE1 on the serverboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. See the tables at right for more information.

| Onboard PWR LED Indicator (LE1) LED Settings | |
|---|---|
| LED Color | Definition |
| Off | System Off/Power cable not connected |
| Green | System On |
| Green: Flashing Quickly | ACPI S1 State |
| Green: Flashing Slowly | ACPI S3 State |

### LE2

The LE2 LED (located under SW1) is the UID indicator LED. LE2 illuminates when UID is initiated either by the UID button or via IPMI. If initiated a second time, LE2 will turn off.

When the LED blinks blue it means the signal was initiated via IPMI. If blue continuously it means the UID button initiated it.

## 5-11 SATA Port Connections

### SATA Ports

See the table on the right for pin definitions for the onboard SATA ports.

**SATA Port Pin Definitions (I-SATA0 ~ I-SATA5)**

| Pin # | Definition |
|---|---|
| 1 | Ground |
| 2 | TXP |
| 3 | TXN |
| 4 | Ground |
| 5 | RXN |
| 6 | RXP |
| 7 | Ground |

## 5-12 Installing Software

After the hardware has been installed, you should first install the operating system and then the drivers. The necessary drivers are all included on the Supermicro CDs that came packaged with your serverboard.

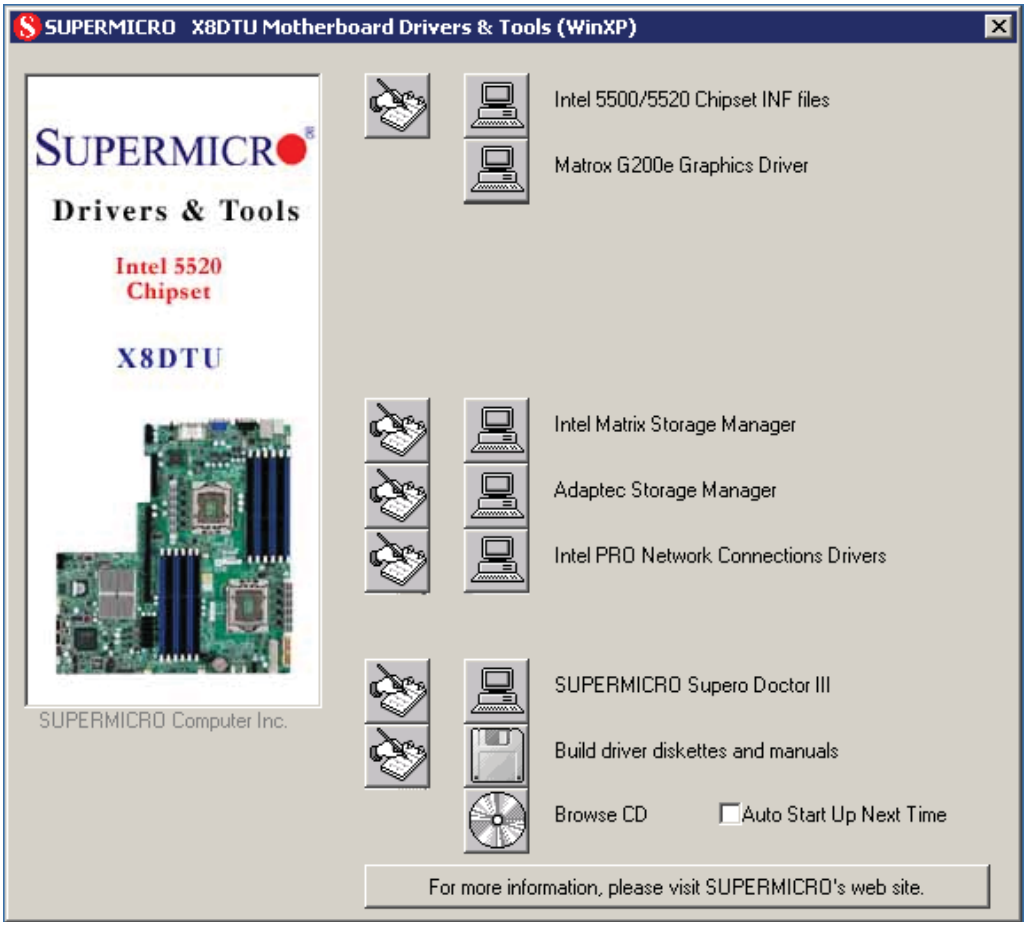



**Figure 5-5. Driver/Tool Installation Display Screen**

**Note:** Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

## Supero Doctor III

The Supero Doctor III program is a Web base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The Supero Doctor III program included on the CDROM that came with your serverboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

**Note:** The default User Name and Password for SuperDoctor III is ADMIN / ADMIN.

**Note:** When SuperDoctor III is first installed, it adopts the temperature threshold settings that have been set in BIOS. Any subsequent changes to these thresholds must be made within Super Doctor, as the Super Doctor settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor III.

**Figure 5-6. Super Doctor III Interface Display Screen-I (Health Information)**

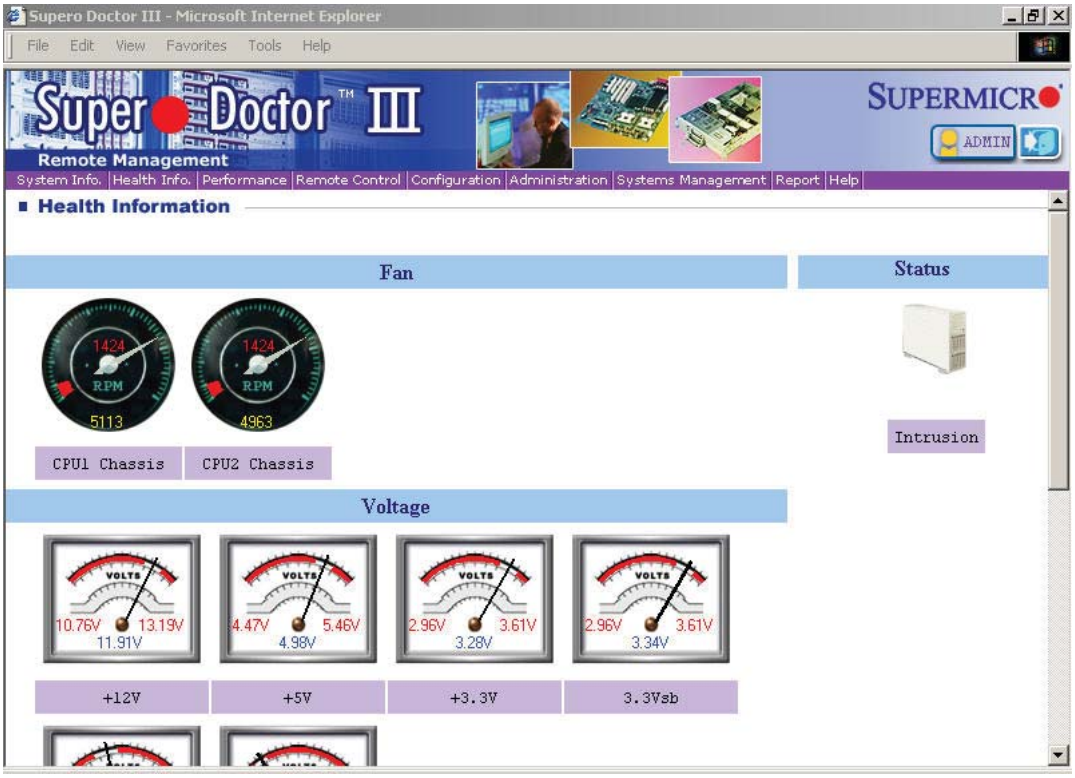


**Figure 5-7. Super Doctor III Remote Control Screen**

Supero Doctor III - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Super Doctor III
Remote Management
SUPERMICRO
ADMIN
System Info. Health Info. Performance Remote Control Configuration Administration Systems Management Report Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Comm.
Graceful power control
Supero Doctor III allows a user to inform the OS to reboot or shut down within a specified time (the default is 30 seconds). Before the system reboots or shuts down, it's allowed to cancel the action.
Requirements
Keep Supero SD3Service Daemon running at all times on this system.
Provide TCP/IP connectivity.
Power control

Note: SD III Software Revision 1.0 can be downloaded from our Web Site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/UserGuide.pdf. For Linux, we will still recommend Supero Doctor II.

# Chapter 6

# Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC113 chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the next step.

**Tools Required:** The only tool you will need to install components and perform maintenance is a Philips screwdriver.

## 6-1 Static-Sensitive Devices

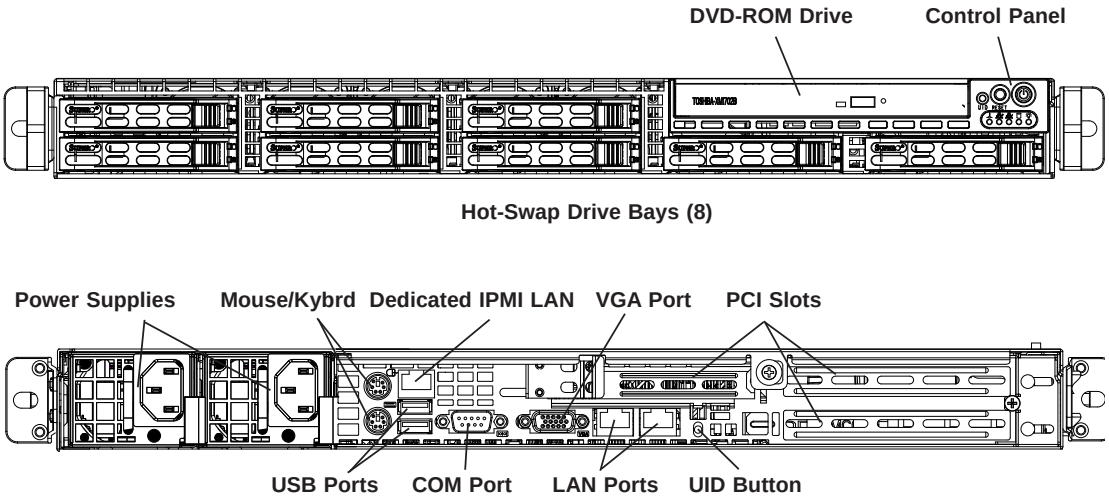
Electrostatic discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully.

The following measures are generally sufficient to protect your equipment from ESD damage.

### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

**Figure 6-1. Chassis: Front and Rear Views**




**Note:** the 1026T-UF features a single power supply only.

## 6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the serverboard to provide you with system status indications. A ribbon cable has bundled these wires together to simplify the connection. Connect the cable from JF1 on the serverboard to the appropriate header on the Control Panel PCB (printed circuit board). Make sure the red wire plugs into pin 1 on both connectors. Pull all excess cabling out of the airflow path.

The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons. Details on JF1 can be found in "Chapter 5: Advanced Serverboard Installation."

## 6-3 System Cooling

Four 4-cm heavy-duty counter-rotating fans provide the cooling for the system. Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counter-rotating action generates exceptional airflow and works to dampen vibration levels. The SC113 chassis provides two additional open fan housings, where an additional system fan may be added for optimal cooling.

It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis and cool the components. See Figure 6-2.

***Adding a System Fan***

1. Turn off the power to the system and unplug the power cord.

2. Remove the chassis cover then remove the dummy fan from the fan tray.

3. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

4. Connect the fan wires to the fan header on the serverboard.

5. Power up the system and check that the fan is working properly before replacing the chassis cover.

## System Fan Failure

Fan speed is controlled by system temperature via a BIOS setting. If a fan fails, the remaining fans will ramp up to full speed. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan).

The SC113 chassis includes four pre-installed fans. Two additional open slots are available so that up to two more fans may be added.

***Replacing a System Fan (Figure 6-2)***

1. Open the chassis while the system is running to determine which fan has failed. Never run the server for an extended period of time with the chassis open.

2. Turn off the power to the system and unplug the power cord.

3. Remove the failed fan's wiring from the fan header on the serverboard.

4. Lift the failed fan from the chassis and pull it completely out.

5. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

6. Reconnect the fan wires to the same chassis fan header as the previous fan.

7. Power up the system and check that the fan is working properly before replacing the chassis cover.

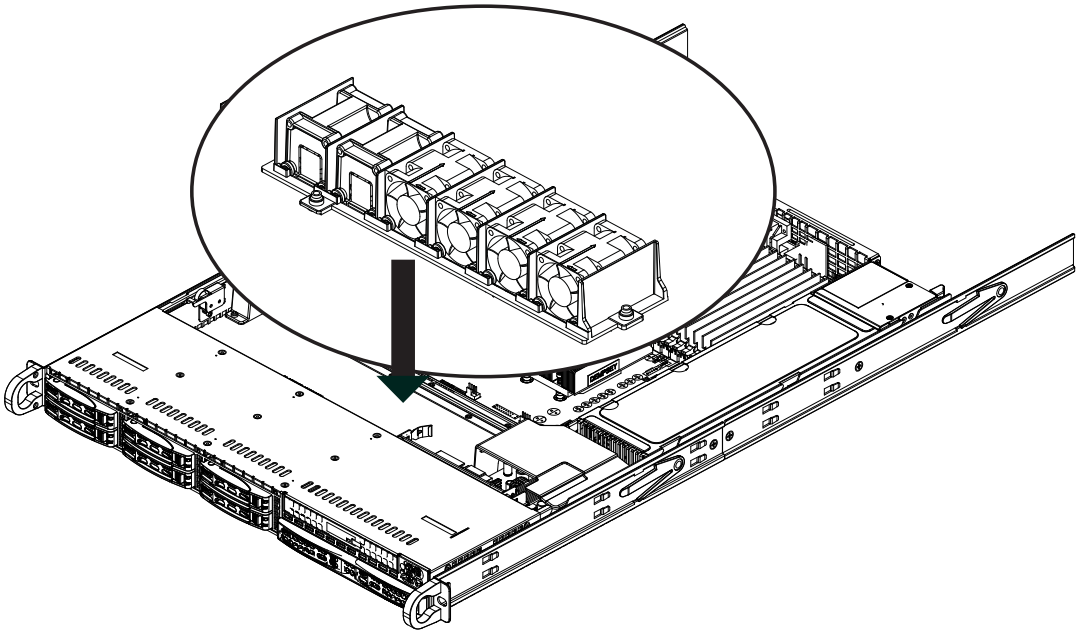


**Figure 6-2: Replacing a System Fan**
**(shown with optional fan installed)**

## 6-4 Drive Bay Installation/Removal

### Accessing the Drive Bays

Hard Drives: Because of their hotswap capability, you do not need to access the inside of the chassis or power down the system to install or replace hard drives. Proceed to the next section for instructions.

DVD-ROM Drive: For installing/removing a DVD-ROM drive, you will need to gain access to the inside of the system by removing the top cover of the chassis. Proceed to the "DVD-ROM Drive Installation" section later in this chapter for instructions.

**Note:** Only a "slim" DVD-ROM drive will fit into the 1026T-URF/1026T-UF.

### Hard Drive Installation

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. For this reason, even empty carriers without drives installed must remain in the chassis.

***Installing a Hard Drive into a Drive Carrier (Figure 6-3)***

1. Insert a drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.

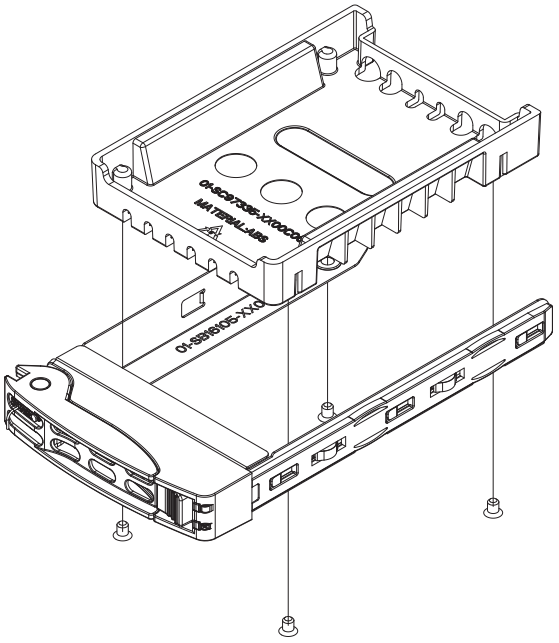
2. Align the drive in the carrier so that the screw holes of both line up. Note that there are holes in the carrier marked “SATA” to aid in correct installation.

3. Secure the drive to the carrier with four screws as illustrated below.

4. Insert the drive carrier into its bay, keeping the carrier oriented so that the hard drive is on the top of the carrier and the release button is on the right side. When the carrier reaches the rear of the bay, the release handle will retract.

5. Push the handle in until it clicks into its locked position

**Figure 6-3: Installing a Hard Drive into a Carrier**



***Removing a Hard Drive (Figure 6-4)***

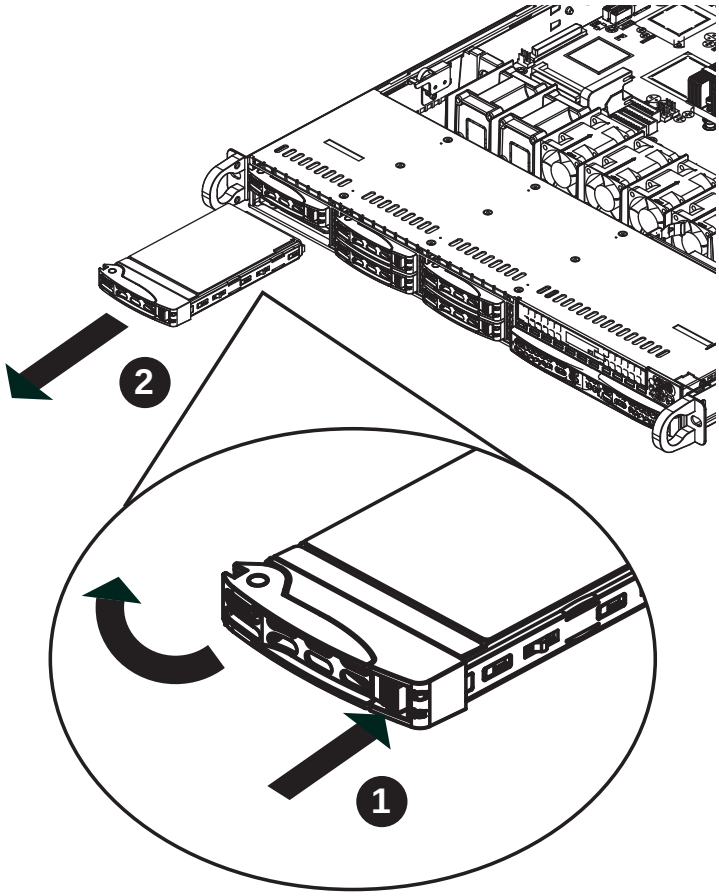
1. To remove a carrier, push the release button located beside the drive LEDs.

2. Swing the handle fully out and use it to pull the unit straight out (see Figure 6-4).

**Note:** Your operating system must have RAID support to enable the hot-plug capability of the hard drives.

**Warning!** Except for short periods of time (such as for swapping hard drives), do not operate the server with the hard drive carriers empty.

**Figure 6-4. Removing a Hard Drive**




## DVD Drive Installation

The SC113 chassis includes a pre-installed DVD-ROM.

***Installing or Replacing a DVD-ROM Drive (Figure 6-5)***

1. Power down the system and if necessary, remove the server from the rack and the front bezel from the chassis.

2. Remove the chassis cover.

3. Unplug the drives power and data cables from the serverboard and/or back-plane.

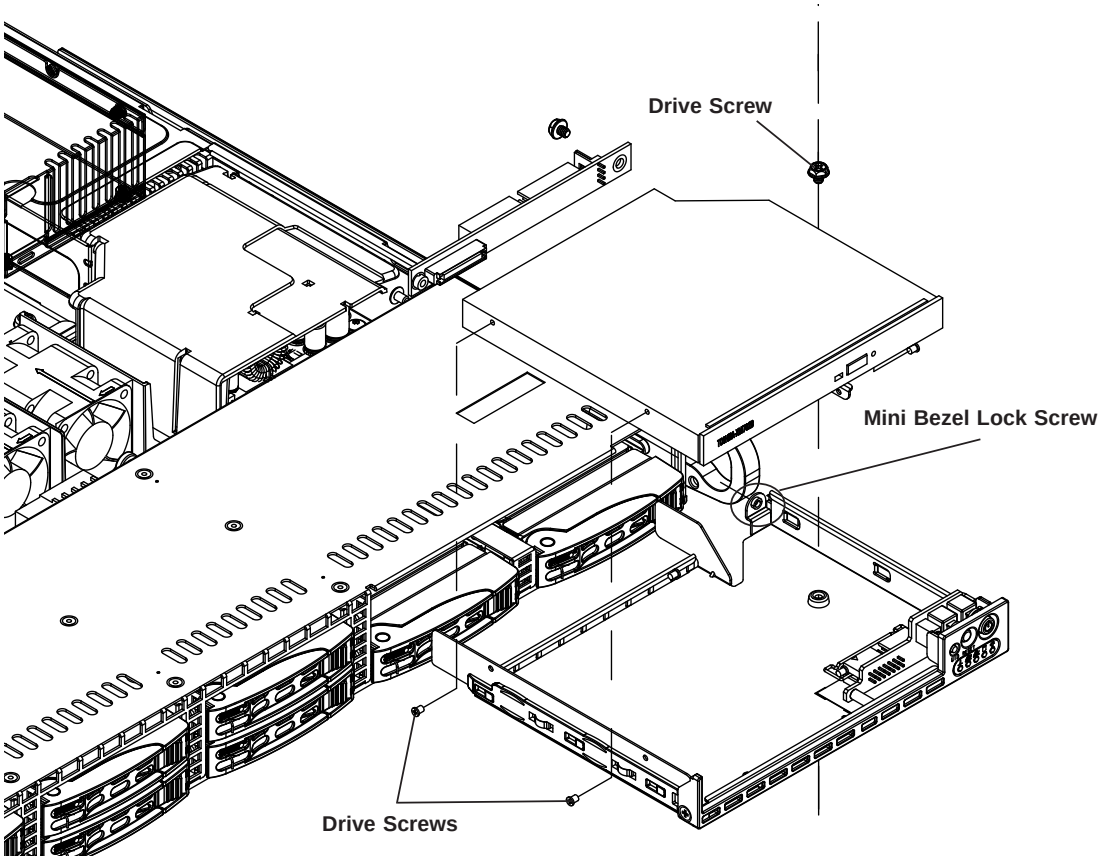
4. If you are adding a new drive: Remove the mini-bezel (grate) from the drive bay The bezel can be removed by pulling out the hard drive beneath the DVD-ROM, then pulling the mini-bezel forward.
   If you are replacing a drive: Locate the locking tab at the rear (left hand side when viewed from the front) of the DVD-ROM drive. Push the tab toward the drive and push the drive unit out the front of the chassis.

5. Insert the new drive unit in the slot until the tab locks in place.

6. Reconnect the data and power cables.

7. Replace the chassis cover (replace the server in the rack, if necessary) and power up the system.

**Figure 6-5. Installing the DVD-ROM Drive**



# 6-5 Power Supply

## 1026T-URF

The SuperServer 1026T-URF has a 650 watt redundant power supply, which is auto-switching capable. This enables it to automatically sense and operate with a 100V to 240V input voltage. A power on/off switch is included on the back of the unit. This switch should be turned to the off position before removing the power cord when replacing the unit.

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Universal Information LED on the control panel will blink slowly and remain so until the failed module has been replaced. Replacement modules can be ordered directly from Supermicro (see contact information in the Preface). The power supply modules have a hot-swap capability, meaning you can replace the failed module without powering down the system.

***Replacing the Power Supply (Figure 6-6)***

1. Check the LEDs on the power supplies to determine which module has failed.
2. Unplug the power cord from the failed module.
3. Push the release tab (on the back of the power supply) as illustrated.
4. Pull the power supply out using the handle provided.
5. Replace the failed power module with the same model.
6. Push the new power supply module into the power bay until you hear a click.
7. Reconnect the power cord to the new module.

## 1026T-UF

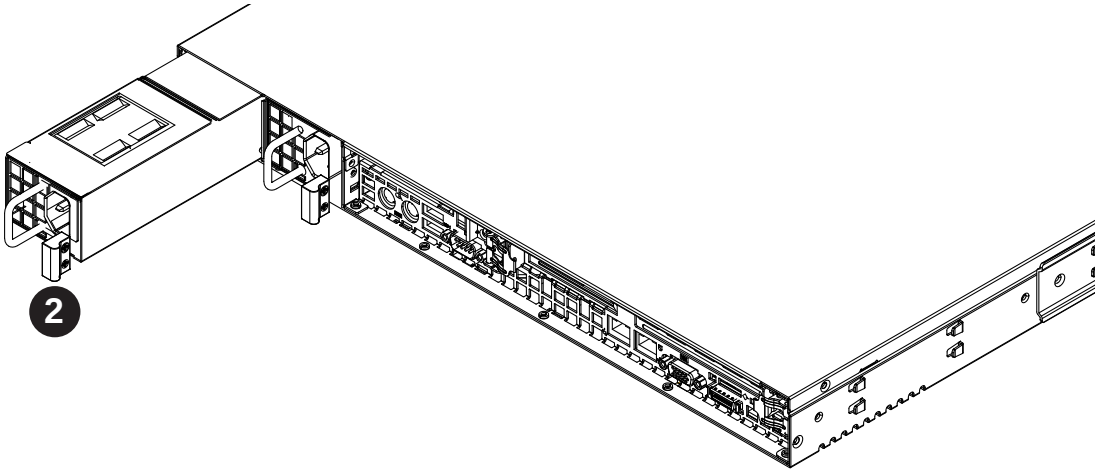
The SuperServer 1026T-UF has a single 560 watt power supply, which is auto-switching capable. This enables it to automatically sense and operate with a 100v - 240v input voltage.

If the power supply module fails, the system will shut down and you will need to replace the module. Replacements can be ordered directly from Supermicro (see contact information in the Preface). As there is only one power supply module in the 1026T-UF, power must be completely removed from the server before removing and replacing the power supply for whatever reason. Replacement modules can be ordered directly from Supermicro (see contact information in the Preface).

***Replacing the Power Supply (Figure 6-6)***

1. First turn the power switch on the control panel off, then unplug the power cord from the system.
2. Push the release tab (on the back of the power supply) as illustrated.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with the same model.
5. Push the new power supply module into the power bay until you hear a click.
6. Reconnect the AC power cord and depress the power button on the control panel to restart the system.

**Figure 6-6. Removing/Replacing the Power Supply**




**Note:** 1026T-URF shown - the 1026T-UF has a single (non-hot swappable) power supply module.

## Notes

# Chapter 7

# BIOS

## 7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X8DTU-F. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

### Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.

**Note**: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.

**Note**: Options printed in **Bold** are default settings.

### How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

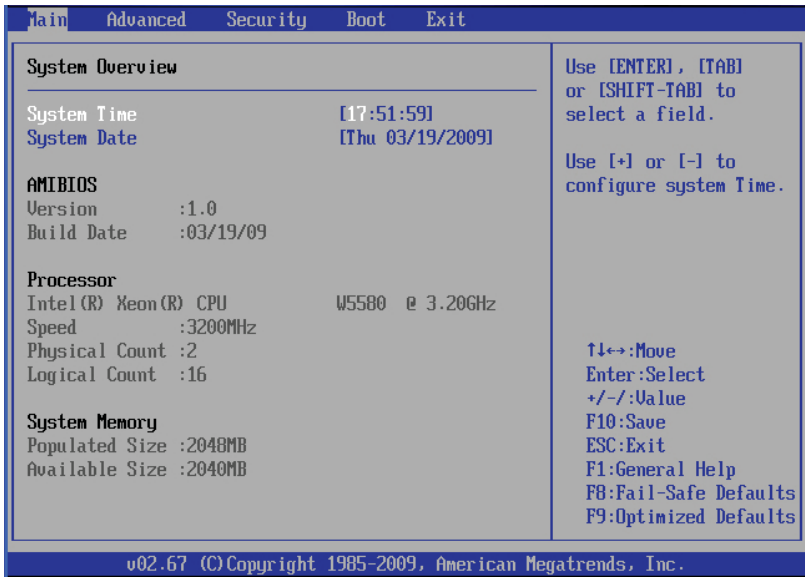
### Starting the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen below the copyright message.

**Warning!** Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

## 7-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.




**System Overview:** The following BIOS information will be displayed:

#### System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Key in new values through the keyboard and press <Enter>. Press the <Tab> key to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format. (**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.)

### AMI BIOS

- **Version**: This item displays the BIOS revision used in your system.
- **Build Date**: This item displays the date when this BIOS was complete.

### Processor

The AMI BIOS will automatically display the status of the processor used in your system:

- **CPU Type**: This item displays the type of CPU used in the serverboard.
- **Speed**: This item displays the speed of the CPU detected by the BIOS.
- **Physical Count**: This item displays the number of processors installed in your system as detected by the BIOS.
- **Logical Count**: This item displays the number of CPU Cores installed in your system as detected by the BIOS.

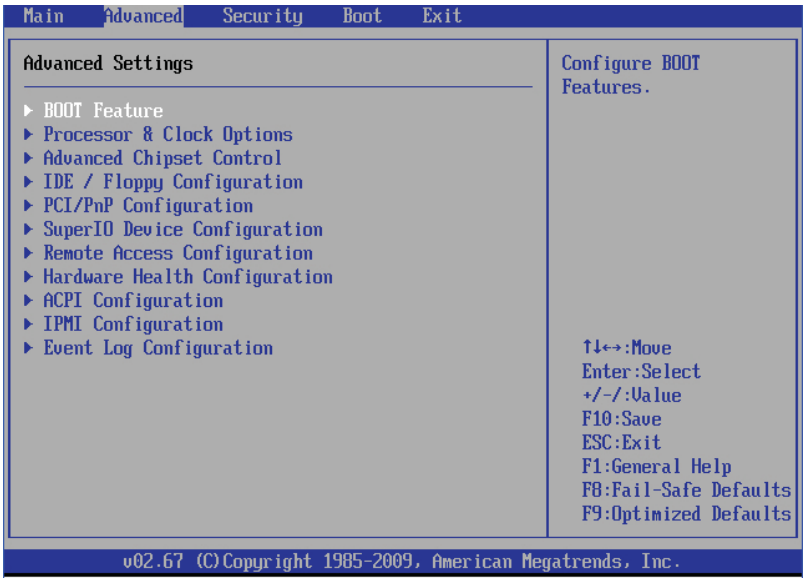
### System Memory

This displays the size of memory available in the system:

- **Populated Size**: This item displays the populated memory size detected by the BIOS.
- **Available Size**: This item displays the memory size that is available for use.

## 7-3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and hit <Enter> to access the submenu items:




### ▶BOOT Features

#### Quick Boot

If Enabled, this option will skip certain tests during POST to reduce the time needed for system boot. The options are **Enabled** and Disabled.

#### Quiet Boot

This option allows the bootup screen options to be modified between POST messages or the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

#### AddOn ROM Display Mode

This sets the display mode for Option ROM. The options are **Force BIOS** and Keep Current.

#### Bootup Num-Lock

This feature selects the Power-on state for Numlock key. The options are Off and **On**.

#### PS/2 Mouse Support

Select Enabled to enable PS/2 Mouse support. Select **Auto** to enable the onboard PS/2 mouse when a PS/2 mouse is detected. The options are Enable, Disabled, and **Auto**.

**Wait For 'F1' If Error**

This forces the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

**Hit 'Del' Message Display**

This feature displays "Press DEL to run Setup" during POST. The options are **Enabled** and Disabled.

**Watch Dog Function**

If enabled, the Watch Dog Timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled.**

**Restore on AC Power Loss**

Use this feature to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are Power-On, Power-Off and **Last State**.

**Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at boot and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

## ▶Processor and Clock Options

This submenu allows the user to configure the Processor and Clock settings.

**CPU Ratio**

Select Manual to manually configure the CPU Ratio. Select Auto to allow the BIOS to automatically configure the CPU Ratio. The options are **Auto** and Manual.

**Clock Spread Spectrum**

Select Enable to use the feature of Clock Spectrum, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disabled** and Enabled.

**Hardware Prefetcher (Available when supported by the CPU)**

If set to Enabled, the hardware pre fetcher will pre fetch streams of data and instructions from the main memory to the L2 cache in the forward or backward manner to improve CPU performance. The options are Disabled and **Enabled**.

**Adjacent Cache Line Prefetch (Available when supported by the CPU)**

The CPU fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if **Enabled**.

**Intel® Virtualization Technology (Available when supported by the CPU)**

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are Enabled and **Disabled**. **Note**: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for detailed information.

**Execute-Disable Bit Capability (Available when supported by the OS and the CPU)**

Set to Enabled to enable the Execute Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Enabled**. (Refer to Intel and Microsoft Web Sites for more information.)

**Simultaneous Multi-Threading (Available when supported by the CPU)**

Set to Enabled to use the Simultaneous Multi-Threading Technology, which will result in increased CPU performance. The options are Disabled and **Enabled.**

**Active Processor Cores**

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are **All,** 1 and 2.

**Intel® EIST Technology**

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disable (Disable GV3) and **Enable (Enable GV3)**.

**Intel® TurboMode Technology**

Select Enabled to use the Turbo Mode to boost system performance. The options are **Enabled** and Disabled.

**C1E Support**

Select Enabled to use the feature of Enhanced Halt State. C1E significantly reduces the CPU's power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disabled and **Enabled**.

**Intel® C-STATE Tech**

If enabled, C-State is set by the system automatically to either C2, C3 or C4 state. The options are Disabled and **Enabled**.

**C-State package limit setting**

If set to Auto, the AMI BIOS will automatically set the limit on the C-State package register. The options are **Auto**, C1, C3, C6 and C7.

**C1 Auto Demotion**

When enabled, the CPU will conditionally demote C3, C6 or C7 requests to C1 based on un-core auto-demote information. The options are Disabled and **Enabled.**

**C3 Auto Demotion**

When enabled, the CPU will conditionally demote C6 or C7 requests to C3 based on un-core auto-demote information. The options are Disabled and **Enabled.**

**DCA Technology**

Select Enabled to use Intel's DCA (Direct Cache Access) Technology to enhance data transfer efficiency. The options are **Enabled** and Disabled.

**DCA Prefetch Delay**

A DCA Prefetch is used with TOE components to prefetch data in order to shorten execution cycles and maximize data processing efficiency. Prefetching too frequently can saturate the cache directory and delay necessary cache accesses. This feature reduces or increases the frequency the system prefetches data. The options are [8], [16], **[32]**, [40], [48], [56], [64], [72], [80], [88], [96], [104], [112], [120]

## ▶Advanced Chipset Control

The items included in the Advanced Settings submenu are listed below:

### ▶QPI & IMC Configuration

QuickPath Interconnect (QPI) is the connection between the CPU and the serverboard's I/O hub. Use this feature to modify speed and power management settings.

**QPI Links Speed**

This feature selects QPI's data transfer speed. The options are Slow-mode, and **Full Speed**.

**QPI Frequency**

This selects the desired QPI frequency. The options are **Auto**, 4.800 GT, 5.866GT, 6.400 GT.

**QPI L0s and L1**

This enables the QPI power state to low power. L0s and L1 are automatically selected by the serverboard. The options are **Disabled** and Enabled.

**Memory Frequency**

This feature forces a DDR3 frequency slower than what the system has detected. The available options are **Auto**, Force DDR-800, Force DDR-1066, and Force DDR-1333.

**Memory Mode**

The options are **Independent**, Channel Mirror, Lockstep and Sparing.

Independent - All DIMMs are available to the operating system.

Channel Mirror - The serverboard maintains two identical copies of all data in memory for redundancy.

Lockstep - The serverboard uses two areas of memory to run the same set of operations in parallel.

Sparing - A preset threshold of correctable errors is used to trigger fail-over. The spare memory is put online and used as active memory in place of the failed memory.

**Demand Scrubbing**

A memory error-correction scheme where the Processor writes corrected data back into the memory block from where it was read by the Processor. The options are **Enabled** and Disabled.

**Patrol Scrubbing**

A memory error-correction scheme that works in the background looking for and correcting resident errors. The options are **Enabled** and Disabled.

**Throttling - Closed Loop/Throttling - Open Loop**

Throttling improves reliability and reduces power in the processor by automatic voltage control during processor idle states. Available options are **Disabled** and Enabled. If Enabled, the following items will appear:

**Hysteresis Temperature (This feature is available when Closed Loop is enabled.)**

Temperature Hysteresis is the temperature lag (in degrees Celsius) after the set DIMM temperature threshold is reached before Closed Loop Throttling begins. The options are **Disabled**, 1.5$^{o}$C, 3.0$^{o}$C, and 6.0$^{o}$C.

**Guardband Temperature (This feature is available when Closed Loop is enabled.)**

This is the temperature which applies to the DIMM temperature threshold. Each step is in 0.5$^{o}$C increment. The default is **[006]**. Press "+" or "-" on your keyboard to change this value.

**Inlet Temperature**

This is the temperature detected at the chassis inlet. Each step is in 0.5$^{o}$C increment. The default is **[070]**. Press "+" or "-" on your keyboard to change this value.

**Temperature Rise**

This is the temperature rise to the DIMM thermal zone. Each step is in 0.5$^{o}$C increment. The default is **[020]**. Press "+" or "-" on your keyboard to change this value.

**Air Flow**

This is the air flow speed to the DIMM modules. Each step is one mm/sec. The default is **[1500]**. Press "+" or "-" on your keyboard to change this value.

**Altitude**

This feature defines how many meters above or below sea level the system is located. The options are **Sea Level or Below,** 1~300, 301~600, 601~900, 901~1200, 1201~1500, 1501~1800, 1801~2100, 2101~2400, 2401~2700, 2701~3000.

**DIMM Pitch**

This is the physical space between each DIMM module. Each step is in 1/1000 of an inch. The default is **[400]**. Press "+" or "-" on your keyboard to change this value.

**Intel VT-d**

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms,

providing the user with greater reliability, security and availability in networking and data-sharing. The options are Enabled and **Disabled**.

### SR-IOV Supported

Select Enabled to enable Single Root I/O Virtualization (SR-IOV) support which works in conjunction with the Intel Virtualization Technology and allow multiple operating systems running simultaneously within a single computer via natively share PCI-Express devices in order to enhance network connectivity and performance. The options are Enabled and **Disabled**.

### NUMA Support

Select Enabled to use the feature of Non-Uniform Memory Access to improve CPU performance. The options are Enabled and **Disabled**.

### Intel I/OAT

The Intel I/OAT (I/O Acceleration Technology) significantly reduces CPU overhead by leveraging CPU architectural improvements, freeing resources for more other tasks. The options are Disabled and Enabled.

### Slot SXB2/SXB3 Width

This feature allows the user to change the link width of a PCI slot as specified in order to support a riser or add-on card installed in the slot. The options are x4x4x4x4, **x4x4x8**, x8x4x4, x8x8, and x16 as shown in the table below.

| Options: | SXB2/ | SXB3 |
|---|---|---|
| x4x4x4x4: | x4x4/ | x4x4 |
| x4x4x8: | x4x4/ | x8 |
| x8x4x4: | x8/ | x4x4 |
| x8x8: | x8/ | x8 |
| x16: | x16 | |

### Slot SXB1 Width

This feature allows the user to change the link width of a PCI slot as specified in order to support a riser or add-on card installed in the slot. The options are x4x4x4x4, x4x4x8, x8x4x4, **x8x8,** and x16.

### Active State Power Management

Select Enabled to use the power management for signal transactions between the PCI Express L0 and L1 Links. Select Enabled to configure PCI-Exp. L0 and L1 Link power states. The options are **Disabled** and Enabled.

**USB Functions**

This feature allows the user to decide the number of onboard USB ports to be enabled. The Options are: Disabled, 2 USB ports, 4 USB ports, 6 USB ports, 8 Ports, 10 Ports and **12 USB ports**.

**USB 2.0 Controller**

This item indicates if the onboard USB 2.0 controller is activated. The default setting is Enabled.

**Legacy USB Support**

Select Enabled to use Legacy USB devices. If this item is set to Auto, Legacy USB support will be automatically enabled if a legacy USB device is installed on the serverboard, and vise versa. The settings are Disabled, Enabled and **Auto**.

**BIOS EHCI Hand-Off**

Select Enabled to enable BIOS Enhanced Host Controller Interface support to provide a workaround solution for an operating system that does not have EHCI Hand-Off support. When enabled, the EHCI Interface will be changed from the BIOS-controlled to the OS-controlled. The options are Disabled and **Enabled**.

## ▶IDE/Floppy Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the IDE or Floppy devices and displays the following items:

**SATA#1 Configuration**

If Compatible is selected, it sets SATA#1 to legacy compatibility mode, while selecting Enhanced sets SATA#1 to native SATA mode. The options are Disabled, Compatible and **Enhanced**.

**Configure SATA#1 as**

This feature allows the user to select the drive type for SATA#1. The options are **IDE,** RAID and AHCI. (When the option-RAID is selected, the item-ICH RAID Code Base will appear. When the option-AHCI is selected, the item-SATA AHCI will be available.)

**SATA#2 Configuration (Available when the option-IDE is selected.)**

Selecting Enhanced will set SATA#2 to native SATA mode. The options are Disabled, and **Enhanced**.

**ICH RAID Code Base (Available when the option-RAID is selected.)**

Select Intel to enable Intel's SATA RAID firmware to configure Intel's SATA RAID settings. Select Adaptec to enable Adaptec's SATA RAID firmware to configure Adaptec's SATA RAID settings. The options are **Intel** and Adaptec.

**SATA AHCI (Available when the option-AHCI is selected.)**

Select Enable to enable the function of Serial ATA Advanced Host Interface. (Take caution when using this function. This feature is for advanced programmers only.)

**IDE Detect Timeout (sec)**

Use this feature to set the time-out value for the BIOS to detect the ATA, ATAPI devices installed in the system. The options are 0 (sec), 5, 10, 15, 20, 25, 30, and **35**.

## ▶PCI/PnP Configuration

**Clear NVRAM**

This feature clears the NVRAM during system boot. The options are **No** and Yes.

**Plug & Play OS**

Selecting Yes allows the OS to configure Plug & Play devices. (This is not required for system boot if your system has an OS that supports Plug & Play.) Select **No** to allow the AMI BIOS to configure all devices in the system.

**PCI Latency Timer**

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are 32, **64**, 96, 128, 160, 192, 224 and 248.

**PCI IDE BusMaster**

When enabled, the BIOS uses PCI bus mastering for reading/writing to IDE drives. The options are Disabled and **Enabled.**

**PCIe IO Performance**

This feature allows the user to configure PCI-E slot settings to enhance performance. The default setting is **128MB.**

**PCI SERR Function**

PCI SERR (System Error) is for reporting address parity errors, or any other fatal system errors. It is shared among all PCI devices. The options are **Disabled** and Enabled.

**PCI SERR Signal Type (Available when PCI SERR Function is enabled.)**

System Monitoring Interface (SMI) and Non-Maskable Interrupt (NMI) are different signal interfaces in the serverboard that handles system errors. The options are [NMI], and **[SMI]**.

**PCI-E Slot from SXB1/PCI-E Slot from SXB2/PCI-E Slot from SXB3**

Select Enabled to enable PCI-E SXB1 slot, PCI-E SXB2 slot or PCI-E SXB3 slot. It can also enable Option ROMs to boot computer using a network interface from these slots. (SXB1, a x16 slot, can be configured into two x8 slots. SXB2, a x8 slot, can be configured into two x4 slots.) The options are Enabled and **Disabled.**

**Onboard LAN Option ROM Select**

Select iSCSI to use iSCSI Option ROMs to boot the computing using a network device. Select iSCSI to use PXE Option ROMs to boot the computing using a network device. The options are iSCSI and **PXE**.

**Load Onboard LAN1 Option ROM/Load Onboard LAN2 Option ROM**

Select Enabled to enable the onboard LAN1 or LAN2 Option ROM. This is to boot the computer using a network interface. The options are Enabled and **Disabled.**

## ▶Super IO Device Configuration

**Uart 2 of Hermon as (Available on X8DTU-F Only)**

Select COM to configure the onboard COM 2 port as a normal serial port. Select SOL to configure the onboard COM 2 port as a virtual COM port for SOL use. The options are **SOL** and COM.

**Serial Port1 Address/ Serial Port2 Address**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 and Serial Port 2. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable. Select 3F8/IRQ4 to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. The options for Serial Port1 are Disabled, **3F8/IRQ4**, 3E8/IRQ4, 2E8/IRQ3. The options for Serial Port2 are Disabled, **2F8/IRQ3**, 3E8/IRQ4, and 2E8/IRQ3.

## ▶Remote Access Configuration

**Remote Access**

This allows the user to enable the Remote Access feature. The options are **Disabled** and Enabled.

If Remote Access is set to Enabled, the following items will display:

**Serial Port Number**

This feature allows the user decide which serial port to be used for Console Redirection. The options are **COM 1** and COM 2.

**Serial Port Mode**

This feature allows the user to set the serial port mode for Console Redirection. The options are **115200 8, n 1**; 57600 8, n, 1; 38400 8, n, 1; 19200 8, n, 1; and 9600 8, n, 1.

**Flow Control**

This feature allows the user to set the flow control for Console Redirection. The options are **None**, Hardware, and Software.

**Redirection After BIOS POST**

Select Disabled to turn off Console Redirection after Power-On Self-Test (POST). Select Always to keep Console Redirection active all the time after POST. (Note: This setting may not be supported by some operating systems.) Select Boot Loader to keep Console Redirection active during POST and Boot Loader. The options are Disabled, Boot Loader, and **Always**.

**Terminal Type**

This feature allows the user to select the target terminal type for Console Redirection. The options are ANSI, **VT100**, and VT-UTF8.

**VT-UTF8 Combo Key Support**

A terminal keyboard definition that provides a way to send commands from a remote console. Available options are **Enabled** and Disabled.

**Sredir Memory Display Delay**

This feature defines the length of time in seconds to display memory information. The options are **No Delay,** Delay 1 Sec, Delay 2 Sec, and Delay 4 Sec.

## ▶Hardware Health Monitor

This feature allows the user to monitor system health and review the status of each item as displayed.

**CPU Overheat Alarm**

This option allows the user to select the CPU Overheat Alarm setting which determines when the CPU OH alarm will be activated to provide warning of possible CPU overheat.

**Warning!** 1.Any temperature that exceeds the CPU threshold temperature predefined by the CPU manufacturer may result in CPU overheat or system instability. When the CPU temperature reaches this predefined threshold, the CPU and system cooling fans will run at full speed. 2. To avoid possible system overheating, please be sure to provide adequate airflow to your system.

The options are:

- The Early Alarm: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered as soon as the CPU temperature reaches the CPU overheat threshold as predefined by the CPU manufacturer.

- **The Default Alarm**: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered when the CPU temperature reaches about 5ºC above the threshold temperature as predefined by the CPU manufacturer to give the CPU and system fans additional time needed for CPU and system cooling. In both the alarms above, please take immediate action as shown below.

**CPU 1 Temperature/CPU 2 Temperature/System Temperature**

This feature displays current temperature readings for the CPU and the System.

The following items will be displayed for your reference only:

**CPU1 Temperature/CPU2 Temperature**

The CPU thermal technology that reports absolute temperatures (Celsius/Fahrenheit) has been upgraded to a more advanced feature by Intel in its newer processors. The basic concept is each CPU is embedded by unique temperature information that the serverboard can read. This 'Temperature Threshold' or 'Temperature Tolerance' has been assigned at the factory and is the baseline on which the serverboard takes action during different CPU temperature conditions (i.e., by increasing CPU Fan speed, triggering the Overheat Alarm, etc). Since CPUs can have different 'Temperature Tolerances', the installed CPU can now send information to the serverboard what its 'Temperature Tolerance' is, and not the other way around. This results in better CPU thermal management.

Supermicro has leveraged this feature by assigning a temperature status to certain thermal conditions in the processor (Low, Medium and High). This makes it easier for the user to understand the CPU's temperature status, rather than by just simply seeing a temperature reading (i.e., 25ºC). The CPU Temperature feature will display the CPU temperature status as detected by the BIOS:

**Low** – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The serverboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

**Medium** – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The serverboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

**High** – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm.

User intervention: If the system buzzer and Overheat LED has activated, take action immediately by checking the system fans, chassis ventilation and room temperature to correct any problems.

**Notes**: 1. The system may shut down if it continues for a long period to prevent damage to the CPU.

2. The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

**System Temperature:** The system temperature will be displayed (in degrees in Celsius and Fahrenheit) as it is detected by the BIOS.

**Fan 1 ~ Fan 8 Reading**

This feature displays the fan speed readings from fan interfaces Fan 1 through Fan 8.

**Fan Speed Control Modes**

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase, and vice versa. Select Workstation if your system is used as a Workstation. Select Server if your system is used as a Server. Select "Disabled, (Full Speed @12V)" to disable the fan speed control function and allow the onboard fans to constantly run at the full speed (12V). The Options are: **Disabled (Full Speed)**, 4-pin (Server), 4-pin (Workstation), 4-pin (Quiet) and 4-pin (Super Quiet).

**Voltage Monitoring**

CPU1 Vcore, CPU2 Vcore, 1.5V, 5V, 5VSB, 12V, -12V, 3.3Vcc, 3.3VSB, VBAT and Vtt.

## ▶ACPI Configuration

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

**High Performance Event Timer**

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

**PS2 KB/MS Wakeup**

Select Enabled to "wakeup" the system when you press the PS2 Keyboard or Mouse. The options are Enabled and **Disabled**.

**ACPI Aware O/S**

Select Yes to enable ACPI support for an operating system that supports ACPI. Select No to disable ACPI support for an OS that does not support ACPI. The options are **Yes** and No.

**ACPI APIC Support**

Select Enabled to include the ACPI APIC Table Pointer in the RSDT (Root System Description Table) pointer list.The options are **Enabled** and Disabled.

**APIC ACPI SCI IRQ**

When this item is set to Enabled, APIC ACPI SCI IRQ is supported by the system. The options are Enabled and **Disabled**.

**Headless Mode**

This feature is used to enable system to function without a keyboard, monitor or mouse attached The options are Enabled and **Disabled**.

**ACPI Version Features**

The options are ACPI v1.0, **ACPI v2.0** and ACPI v3.0. Please refer to ACPI's website for further explanation: http://www.acpi.info/.

## ▶IPMI Configuration (X8DTU-F Only)

Intelligent Platform Management Interface (IPMI) is a set of common interfaces that IT administrators can use to monitor system health and to manage the system as a whole. For more information on the IPMI specifications, please visit Intel's website at www.intel.com.

**IPMI Firmware Version**

This item displays the current IPMI Firmware Version.

**Status of BMC Working**

The Baseboard Management Controller (BMC) manages the interface between system management software and platform hardware. This item displays the status of the current BMC controller.

## ▶View BMC System Event Log

This feature displays the BMC System Event Log (SEL). It shows the total number of entries of BMC System Events. To view an event, select an Entry Number and pressing <Enter> to display the information as shown in the screen.

- Total Number of Entries
- SEL Entry Number
- SEL Record ID
- SEL Record Type
- Event Timestamp
- Generator ID
- Event Message Format User
- Event Sensor Type
- Event Sensor Number,
- Event Dir Type
- Event Data.

**Clear BMC System Event Log**

**Clear BMC System Log**

Select OK and press the <Enter> key to clear the BMC system log. Select Cancel to keep the BMC System log. The options are **OK** and Cancel.

**Caution**: Any cleared information is unrecoverable. Make absolutely sure that you no longer need any data stored in the log before clearing the BMC Event Log.

## ▶Set LAN Configuration

Set this feature to configure the IPMI LAN adapter with a network address as shown in the following graphics.

**Channel Number** - Enter the channel number for the SET LAN Config command. This is initially set to **[1]**. Press "+" or "-" on your keyboard to change the Channel Number.

**Channel Number Status** - This feature returns the channel status for the Channel Number selected above: "Channel Number is OK" or "Wrong Channel Number".

### IP Address Source

This features allows the user to select how an IP address is assigned to a client computer or network device. Select DHCP (Dynamic Host Configuration Protocol) to allow a client (computer or device) obtains an IP address from a DHCP server that manages a pool of IP addresses and network information on a "request and grant" basis. Upon time-out (or lease expiration), the IP address assigned to the client can be reassigned to a new client. Select **Static** (Static Allocation) to allow the host server to allocate an IP address based on a table containing MAC Address/IP Address pairs that are manually entered (probably by a network administrator). Only clients with a MAC address listed in the MAC/IP Address Table will be assigned an IP address. The IP Address allocated to the client is on a longer term basis than that assigned by the DHCP mentioned in the other option. The options are DHCP and **Static**.

### IP Address

The BIOS will automatically enter the IP address of this machine; however it may be over-ridden. IP addresses are 6 two-digit hexadecimal numbers (Base 16, 0 ~ 9, A, B, C, D, E, F) separated by dots. (i.e., 00.30.48.D0.D4.60).

### Subnet Mask

This item displays the current subnet mask setting for your IPMI connection. The value of each three-digit number separated by dots should not exceed 255.

### Gateway Address

The BIOS will automatically enter the Gateway address of this machine; however it may be over-ridden. IP addresses are 6 two-digit hexadecimal numbers (Base 16, 0 ~ 9, A, B, C, D, E, F) separated by dots. (i.e., 00.30.48.D0.D4.60).

### Mac Address

The BIOS will automatically enter the Mac address of this machine; however it may be over-ridden. Mac addresses are 6 two-digit hexadecimal numbers (Base 16, 0 ~ 9, A, B, C, D, E, F) separated by dots. (i.e., 00.30.48.D0.D4.60).

## ▶SET PEF Configuration

### PEF Support

Select Enabled to enable the function of Platform Event Filter (PEF) which will interpret BMC events and perform actions based on pre-determined settings or 'traps' under IPMI 1.5 specifications. Powering the system down or sending an alert when a triggering event is detected. The default is **Disabled.**

The following will appear if PEF Support is set to Enabled.

### PEF Action Global Control (Available if the item-PEF Support is enabled)

These are the different actions based on BMC events. The options are **Alert**, Power Down, Reset System, Power Cycle, OEM Action, Diagnostic Interface.

### Alert Startup Delay (Available if the item-PEF Support is enabled)

This feature inserts a delay during startup for PEF alerts. The options are Enabled and **Disabled**.

### PEF Alert Startup Delay (Available if Alert Startup Delay is enabled)

This sets the pre-determined time to delay PEF alerts after system power-ups and resets. Refer to Table 24.6 of the IPMI 1.5 Specification for more information at www.intel.com. The options are **No Delay**, 30 sec, 60 sec, 1.5 min, 2.0 min.

### Startup Delay (Available if the item-PEF Support is enabled)

This feature enables or disables startup delay. The options are Enabled and **Disabled**.

### PEF Startup Delay (Available if the item-Startup Delay is enabled)

This sets the pre-determined time to delay PEF after system power-ups and resets. Refer to Table 24.6 of the IPMI 1.5 Specification for more information at www.intel.com. The options are **No Delay**, 30 sec, 60 sec, 1.5 min, 2.0 min.

### Event Message for PEF Action (Available if the item-PEF Support is enabled)

This enables of disables Event Messages for PEF action. Refer to Table 24.6 of the IPMI 1.5 Specification for more information at www.intel.com. The options are **Disabled** and Enabled.

### BMC Watch Dog Timer Action

Allows the BMC to reset or power down the system if the operating system hangs or crashes. The options are **Disabled**, Reset System, Power Down, Power Cycle.

### BMC Watch Dog TimeOut [Min:Sec]

This option appears if BMC Watch Dog Timer Action (above) is enabled. This is a timed delay in minutes or seconds, before a system power down or reset after an operating system failure is detected. The options are **[5 Min]**, [1 Min], [30 Sec], and [10 Sec].

## ▶DMI Event Log Configuration

### View Event Log

Use this option to view the System Event Log.

### Mark All Events as Read

This option marks all events as read. The options are OK and Cancel.

### Clear Event Log

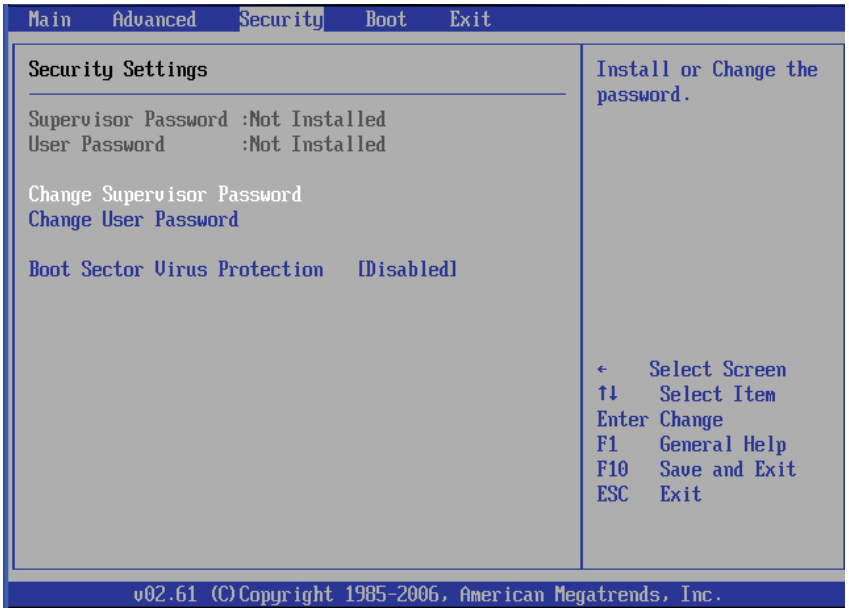
This option clears the Event Log memory of all messages. The options are OK and **Cancel.**

### PCIE Event Log

Select Yes to activate and display the PCI-Express slot event log. The options are **Yes** and No.

# 7-4 Security Settings

The AMI BIOS provides a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.



**Supervisor Password**

This item indicates if a Supervisor password has been entered for the system. "Not Installed" means a Supervisor password has not been used.

**User Password**

This item indicates if a user password has been entered for the system. "Not Installed" means that a user password has not been used.

**Change Supervisor Password**

Select this feature and press <Enter> to access the submenu, and then type in a new Supervisor Password.

**User Access Level** (Available when Supervisor Password is set as above)

Available options are **Full Access**: grants full User read and write access to the Setup Utility, View Only: allows access to the Setup Utility but the fields cannot be changed, Limited: allows only limited fields to be changed such as Date and Time, No Access: prevents User access to the Setup Utility.

**Change User Password**

Select this feature and press <Enter> to access the submenu , and then type in a new User Password.

**Clear User Password (Available only when User Password has been set)**

This item allows you to clear a user password after it has been entered.

**Password Check**

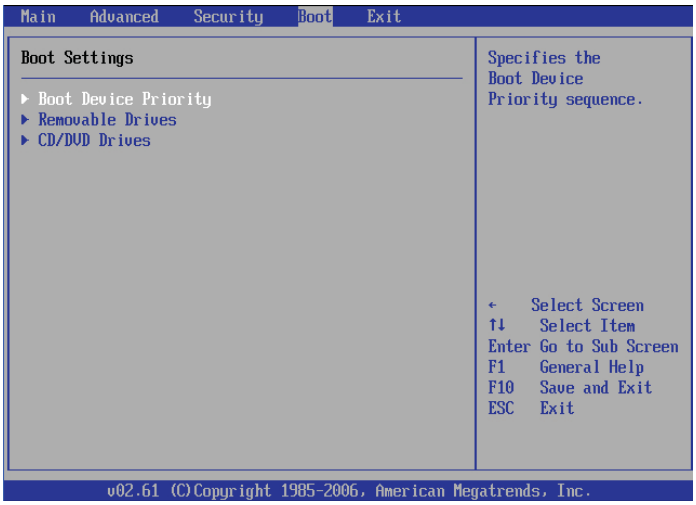
This item allows you to check a password after it has been entered. The options are **Setup** and Always.

**Boot Sector Virus Protection**

When Enabled, the AMI BIOS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The options are Enabled and **Disabled**.

## 7-5 Boot Configuration

Use this feature to configure boot settings.




### ▶Boot Device Priority

This feature allows the user to specify the sequence of priority for the Boot Device. The settings are 1st boot device, 2nd boot device, 3rd boot device, 4th boot device, 5th boot device and Disabled.

- 1st Boot Device - [USB: XXXXXXXXX]
- 2nd Boot Device - [CD/DVD: XXXXXXXXX]

### ▶Hard Disk Drives

This feature allows the user to specify the boot sequence from all available hard disk drives. The settings are Disabled and a list of all hard disk drives that have been detected (i.e., 1st Drive, 2nd Drive, 3rd Drive, etc).

- 1st Drive - [SATA: XXXXXXXXX]

### ▶Removable Drives

This feature allows the user to specify the boot sequence from available Removable Drives. The settings are 1st boot device, 2nd boot device, and Disabled.

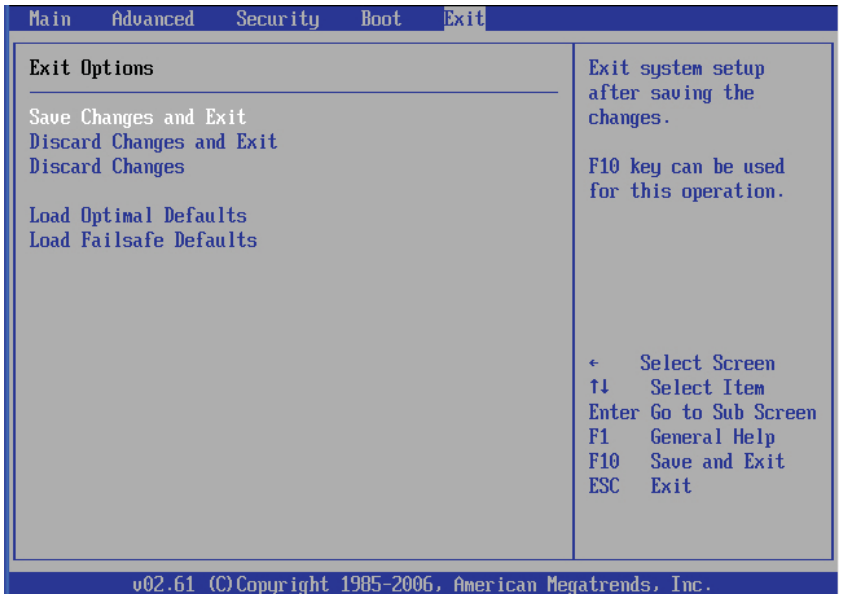
- 1st Drive - [USB: XXXXXXXXX]/2nd Drive

### ▶CD/DVD Drives

This feature allows the user to specify the boot sequence from available CD/DVD Drives (i.e., 1st Drive, 2nd Drive, etc).

## 7-6 Exit Options

Select the Exit tab from the Setup Utility screen to enter the Exit screen.


Main Advanced Security Boot Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

### Save Changes and Exit

When you have completed the system configuration changes, select this option to leave the BIOS Setup Utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

### Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

### Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS Utility Program.

### Load Optimal Defaults

To set this feature, select Load Optimal Defaults from the Exit menu and press <Enter>. Then, select OK to allow the AMI BIOS to automatically load Optimal Defaults to the BIOS Settings. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications.

### Load Fail-Safe Defaults

To set this feature, select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The Fail-Safe settings are designed for maximum system stability, but not for maximum performance.

# Appendix A

# BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

**BIOS Error Beep Codes**

| Beep Code | Error Message | Description |
|---|---|---|
| 1 beep | Refresh | Circuits have been reset. (Ready to power up) |
| 5 short beeps, 1 long beep | Memory error | No memory detected in the system |
| 8 beeps | Display memory read/write error | Video adapter missing or with faulty memory |
| 1 continuous beep (with the front panel OH LED on) | System Overheat | 1 continuous beep with the front panel OH LED on |

# Notes

# Appendix B

# Installing Windows

After all hardware components have been installed, you must first configure Intel South Bridge RAID Settings before you install the Windows OS and other software drivers. To configure RAID settings, please refer to RAID Configuration User Guides posted on our web site at www.supermicro.com/support/manuals.

## B-1 Installing the Windows OS for a RAID System

1. Insert Microsoft's Windows 7/XP/2003/2008/Vista Setup CD in the CD drive, and the system will start booting up from CD.

2. Press the <F6> key when the message "Press F6 if you need to install a third party SCSI or RAID driver" displays.

3. When the Windows OS Setup screen appears, press "S" to specify additional device(s).

4. Insert the driver diskette "Intel AA RAID Windows XP/2003/2008/Vista Driver for ICH10R" into the floppy drive and press the <Enter> key.

5. Choose the Intel(R) ICH10R SATA RAID Controller from the list indicated in the Windows OS Setup Screen, and press the <Enter> key.

6. Press the <Enter> key to continue the installation process. (If you need to specify any additional devices to be installed, do so at this time.) Once all devices are specified, press the <Enter> key to continue with the installation.

7. From the Windows OS Setup screen, press the <Enter> key. The Windows OS Setup will automatically load all device files and then, continue the Windows OS installation.

8. After the Windows OS Installation is complete, the system will automatically reboot.

## B-2 Installing the Windows OS for a Non-RAID System

1. Insert Microsoft's Windows 7/XP/Windows 2003/Windows 2008/Windows Vista Setup CD in the CD drive, and the system will start booting up from CD.

2. Continue with the OS installation. The Windows OS Setup screen will display.

3. From the Windows OS Setup screen, press the <Enter> key. The Windows OS Setup will automatically load all device files and then continue with the OS installation.

4. After the Windows OS Installation is complete, the system will automatically reboot.

5. Insert the Supermicro Setup CD that came with your serverboard into the CD drive during system boot, and the main screen will display.

# Appendix C

# System Specifications

### Processors
Single or dual Intel® 5500 Series processors in LGA1366 sockets

**Note: Please refer to our web site for a complete listing of supported processors.**

### Chipset
Intel IOH-36D/ICH10R chipset

### BIOS
32 Mb AMI® SPI Flash ROM

### Memory Capacity
Twelve DIMM sockets supporting up to 96 GB of registered ECC DDR3-1333/1066/800 SDRAM

**See the memory section in Chapter 5 for details.**

### SATA Controller
Intel ICH10R on-chip controller for six-port Serial ATA (RAID 0, 1 5 and 10 supported)

### Drive Bays
Eight SATA drive bays
One slim DVD-ROM drive

### Expansion Slots
Right side: (optional) 2x Gb LAN ports w/ RSC-R1UU-E8PR riser card and AOC-PG-i2+ add-on card
Left side: one UIO card and one PCI Express x16 slot

### Serverboard
X8DTU-F (Proprietary form factor)
Dimensions: 12 x 13.05 in (305 x 331 mm)

### Chassis
1026T-URF: SC113TQ-R650 (1U rackmount form factor)
1026T-UF: SC113TQ-560 (1U rackmount form factor)
Dimensions (both): (WxHxD) 17.2 x 1.7 x 23.5 in. (437 x 43 x 597 mm)

### Weight
Gross (Bare Bone): 33 lbs. (15 kg.)

### System Cooling
Four 4-cm counter-rotating fans

### System Input Requirements
AC Input Voltage: 100-240 VAC
Rated Input Current: 8A (115V) to 4A (230V)
Rated Input Frequency: 50-60 Hz

### Power Supply
1026T-URF
Rated Output Power: 650W (Model# PWS-651-1R)
Rated Output Voltages: +5V (25A), +3.3V (12A), +12V (54A), +5Vsb (3A)
1026T-UF
Rated Output Power: 560W (Model# PWS-562-1H20)
Rated Output Voltages: +5V (20A), +3.3V (20A), +12V (46.5A), -12V (0.5A), +5Vsb (4A)

### Operating Environment
Operating Temperature: 10º to 35º C (50º to 95º F)
Non-operating Temperature: -40º to 70º C (-40º to 158º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5 to 95% (non-condensing)

### Regulatory Compliance
Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. “Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate”

(continued from front)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.